

## REQUIRED COURSES AND CLERKSHIPS

### A. SUMMARY DATA

<b>PART A. SUMMARY DATA ON COURSES AND CLERKSHIPS</b>
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#### A. METHODS OF INSTRUCTION

##### YEAR ONE/ACADEMIC PERIOD ONE

Course	Formal instructional hours					Total
	Lecture	Lab	Small groups*	Patient contact	Other†	
Master's Colloquium I					28.00	28.00
Master's Colloquium II					20.00	20.00
Medical Skills I				9.75	25.00	34.75
Medical Skills II	3.00				22.00	25.00
Society, Community & the Individual I	21.50		72.00	12.00	23.50	129.00
Society, Community & the Individual II	2.00		16.00	12.00	12.00	42.00
Scientific Principles of Medicine I	127.00	36.00	35.00		96.75	294.75
Scientific Principles of Medicine II	138.00	15.00	24.00	0.00	71.00	248.00
<b>TOTAL</b>	<b>291.50</b>	<b>51.00</b>	<b>147.00</b>	<b>33.75</b>	<b>298.25</b>	<b>821.50</b>

\* Includes case-based or problem-solving sessions

† **Other by Course:**

Master's colloquium consists of a large group discussion format. For some sessions, students break into small discussion groups and then come back to the large group to discuss.

Medical Skills other categories include large/small group sessions, 1 review session and 1 self-taught session. The large/small group discussions consist of a short readiness/orientation (5 minutes) after which the group is split into teams which complete the skills sessions for the day. Examples of the type of activities include exercises on communications, standardized patient cases, practice skills, simulation exercises, etc. Team size varies from 2 to half the group. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time.

Society, Community & the Individual: Other categories include self-taught, large group discussion, large/small group, and student presentation sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions. Large/small group sessions for this course consist primarily of a lecture followed by practice sessions where students apply the lecture material. During student presentation sessions, a small groups of students present community assessment project results to their fellow students and faculty.

Scientific Principles of Medicine: the other category consists of self-taught sessions, interactive large group sessions, formative exams with feedback, and large/small group sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions, including tank side grand rounds where small groups of students present to the class. Large/small group sessions for this course consist interactive sessions where students break into small group then return to the whole group to discuss with instructor. Sessions do not have a universal format but are characterized by the mix of small and large group work.

**YEAR TWO/ACADEMIC PERIOD TWO**

## Formal instructional hours

Course	Lecture	Lab	Small groups*	Patient contact	Other†	Total
Master's Colloquium III					20.00	<b>20.00</b>
Master's Colloquium IV					22.00	<b>22.00</b>
Medical Skills III			10.00	6.00	10.50	<b>26.50</b>
Medical Skills IV				6.00	12.00	<b>18.00</b>
Society, Community & the Individual III	9.00		11.50	12.00	4.50	<b>37.00</b>
Society, Community & the Individual IV			10.00	12.00	5.00	<b>27.00</b>
Scientific Principles of Medicine III	104.00	9.00	32.00		51.00	<b>196.00</b>
Scientific Principles of Medicine IV	96.00	3.00	28.00		59.50	<b>186.50</b>
<b>TOTAL</b>	<b>209.00</b>	<b>12.00</b>	<b>91.50</b>	<b>36.00</b>	<b>184.50</b>	<b>533.00</b>

\* Includes case-based or problem-solving sessions

† **Other by Course:**

Master's colloquium consists of a large group discussion format. For some sessions, students break into small discussion groups and then come back to the large group to discuss.

Medical Skills other categories include large/small group sessions and community placement. The large/small group discussions consist of a short readiness/orientation (5 minutes) after which the group is split into teams which complete the skills sessions for the day. Examples of the type of activities include exercises on communications, standardized patient cases, practice skills, simulation exercises, etc. Team size varies from 2 to half the group. Community placement consists of a tour of UMC Nursery. The nursery activities involve patient contact but of limited scope.

Society, Community & the Individual: Other categories include self-taught, large group discussion, large/small group, and student presentation sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions. Large/small group sessions for this course consist primarily of a lecture followed by practice sessions where students apply the lecture material. During student presentation sessions, a small groups of students present community assessment project results to their fellow students and faculty.

Scientific Principles of Medicine: the Other category consists of self-taught sessions, interactive large group sessions, formative exams with feedback, and large/small group sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions. Large/small group sessions for this course consist interactive sessions where students break into small group then return to the whole group. Sessions do not have a universal format but are characterized by the mix of small and large group work.

**YEAR THREE/ACADEMIC PERIOD THREE**

Clerkship	Total wks	% Amb.	# Sites used*	Typical hrs/wk formal instruct**	Clinical encounter criteria (Y/N)	Patient log (Y/N)
Internal Medicine	10	35.4%	2/2	8.3	Y	Y
Psychiatry	6	52.6%	2/3		Y	Y
Family Medicine†	6	98.5%	2/13	3.9	Y	Y
Surgery	10	23.5%	1/1		Y	Y
Pediatrics	8	64.2%	1/1	7.9	Y	Y
Obstetrics/Gynecology	8	56.6%	1/1		Y	Y

\* Both psychiatry and family medicine send their students to community clinics as part of their outpatient clinical experiences. Not all students will go to all sites.

\*\*Reported by block. Because our clerkships are semi-integrated, students in a block attend formal instruction by both clerkships. Results are reported by the 15 week average for students in the block. Students within the block attend didactic sessions in common.

† FM includes 4 hrs /week designated as self-directed learning time not reported as formal instruction.

**YEAR FOUR/ACADEMIC PERIOD FOUR**

Clerkship	Total wks	% Amb.	# Sites used*	Typical hrs/wk formal instruct**	Clinical encounter criteria† (Y/N)	Patient log (Y/N)
Clinical Neuroscience	4	40%	1	5	Y	Y
Emergency Medicine	4	100%	1	4	Y	Y
Critical Care#(see below)	4	0%	2	5-8	Y	Y
Sub-Internship##(see below)	4	0-30%	1	4	Y	Y

\*Include the number of sites used for inpatient teaching and the number of sites used for outpatient teaching in the clerkship in the following format: # inpatient/ # outpatient

\*\*Sum of lectures, conferences, and teaching rounds; show the range of hours if there is significant variation across sites

† Have criteria for the kinds of patients, clinical conditions, or procedural skills been defined?

# Please note: Students must complete a critical care selective in one of the following—MICU, CVICU, NICU, PICU, or SICU. Hours of formal instruction varies depending upon the specific selective.

## Please note: Students are required to complete a sub-internship experience in Internal Medicine, Family Medicine, Pediatrics, or Obstetrics-Gynecology. The amount of ambulatory time varies by sub-I.

Course	Lecture	Lab	Small groups *	Patient contact	Other†	Total
Capstone	12	10	12	0	2	36

\* Includes case-based or problem solving sessions

† Final “Progress Test”

**B. METHODS OF EVALUATION****YEAR ONE/ACADEMIC PERIOD ONE**

Course	# of exams	Contribute to Grade (Check all that apply)						
		Internal exams	Lab or practical exams	NBME subject exams	Faculty/resident rating*	OSCE/SP exam	Paper or oral pres.	Other†
Medical Skills I/II	6					✓		✓
Master's Colloquium I/II	0						✓	✓
Society, Community & the Individual I/II	4	✓	✓		✓			✓
Scientific Principles of Medicine I/II	6	✓			✓		✓	✓

\* Include evaluations by faculty members or residents in clinical experiences and also in small group sessions (for example, a facilitator evaluation in small group or case-based teaching)

† Describe the specifics in the report narrative

**Med skills I/II** - The components of the composite assessment are:

- Attendance: Attendance will be recorded weekly. Cumulatively, session attendance will constitute 30% of each student's grade for the course.
- Performance on weekly quizzes: A readiness assurance quiz is regularly included at the beginning of each Medical Skills session. Students achieving high cumulative performance on these quizzes will gain one bonus point added to their cumulative grade for the Unit.
- Completion of the OP Log: Students are expected to record each standardized patient encounter in their Online Patient Log (OP Log). Students completing their OP Log with all of their standardized patient encounters will receive one bonus point added to their cumulative grade for the Unit.
- Performance on OSCE examinations. Each end-of-Unit OSCE will have between 3-5 stations. Two or three of these stations will be standardized patient encounters. Assessment at each station will be based on demonstration of proficiency as assessed using predetermined criteria that assess history taking skills, physical examination technique, communication skills, and professional demeanor. Performance on the OSCE examinations will constitute 70% of the grade for the course.

**Master's Colloquium I/II** - The grading for the Masters' Colloquium has two components:

- Essays: 2 per semester.
- The Professionalism in Colloquium statement at the end of the semester.

**Society, Community, & Individual I-IV** - There are three components of SCI that are graded;

- Classroom learning experiences (attendance at required) and 2 exams 50 points possible
- Community clinic experience 50 points possible - the preceptor feedback form and the student checklist
- Spanish Grade determined by participation and performance on evaluations
  - In-class Participation - Through active speaking, listening, and writing in a professional manner
  - Assignments – Periodic assignments will be made to assist students in learning material
  - Listening Evaluations – Mid-term and final listening evaluations
  - Oral Evaluations – Mid-term and final oral evaluations

**Scientific Principles of Medicine I/II**

- Units 1-5 Unit Grade = 95%(Summative Assessment Grade) + 5%(WCE Attendance)
- Unit 6 - The overall grade for this unit is comprised of the following weighted components:
  - 60% - Summative assessment grade
  - 10% - Donor Electronic Medical Record (DEMUR) grade\*
  - 10% - 'Student teaching students' (STS) anatomy assignment\*\*
  - 10% - Performance on the 'Coding of the Rich & Famous' simulation exercise
  - 5% - Tankside Grand Rounds performance grade
  - 5% - Attendance at Tankside Grand Rounds and the simulation exercise

**YEAR TWO/ACADEMIC PERIOD TWO**

Course	# of exams	Contribute to Grade (Check all that apply)						
		Internal exams	Lab or practical exams	NBME subject exams	Faculty/resident rating*	OSCE/SP exam	Paper or oral pres.	Other†
Medical Skills III/IV	5	✓				✓		✓
Master's Colloquium I/II	0						✓	✓
Society, Community & the Individual I/II	2	✓	✓		✓			✓
Scientific Principles of Medicine III/IV	5	✓			✓			✓

\* Include evaluations by faculty members or residents in clinical experiences and also in small group sessions (for example, a facilitator evaluation in small group or case-based teaching)

† Describe the specifics in the report narrative

**Medical Skills III/IV** The components of the composite assessment are:

- Attendance: Attendance will be recorded weekly. Cumulatively, session attendance will constitute 30% of each student's grade for the course.
- Performance on weekly quizzes: A readiness assurance quiz is regularly included at the beginning of each Medical Skills session. Students achieving high cumulative performance on these quizzes will gain one bonus point added to their cumulative grade for the Unit.
- Completion of the OP Log: Students are expected to record each standardized patient encounter in their Online Patient Log (OP Log). Students completing their OP Log with all of their standardized patient encounters will receive one bonus point added to their cumulative grade for the Unit.
- Performance on OSCE examinations: Each end-of-Unit OSCE will have between 3-5 stations. Two or three of these stations will be standardized patient encounters. Assessment at each station will be based on demonstration of proficiency as assessed using predetermined criteria that assess history taking skills, physical examination technique, communication skills, and professional demeanor. Any TBL sessions held during the Unit will also be included in the OSCE exam score. Performance on the OSCE examinations will constitute 70% of the grade for the course.
- Team-based Learning: TBL sessions are included to teach selected diagnostic and test interpretation skills. TBL sessions consist of an individual readiness assurance test, a group readiness assurance test, and an application exercise. All of these activities are graded, and scores from these TBL activities will be included as part of the final Unit grade for each student. It is noted that a small contribution of this grade comes from group activities. Therefore each student's individual Unit grade will, to a small extent, reflect the performance of their peers.

**Master's Colloquium III/IV** - The grading for the Masters' Colloquium has two components:

- Essays: 2 per semester.
- The Professionalism in Colloquium statement at the end of the semester.

**Society, Community, & Individual I-IV** - There are three components of SCI that are graded;

- Classroom learning experiences (attendance at required) and 2 exams 50 points possible
- Community clinic experience 50 points possible - the preceptor feedback form and the student checklist
- Spanish Grade determined by participation and performance on evaluations
  - In-class Participation - Through active speaking, listening, and writing in a professional manner
  - Assignments – Periodic assignments will be made to assist students in learning material
  - Listening Evaluations – Mid-term and final listening evaluations

Academic Year 2011-2012

- Oral Evaluations – Mid-term and final oral evaluations

**SPM III/IV** - Other consists of attendance points (5% of grade) for selected sessions. These are small group sessions where we have determined that the quality of the learning experience is dependent on participation.



**YEARS/ACADEMIC PERIODS THREE AND FOUR**

Course or Clerkship	Contribute to Grade (Check all that apply)						Clinical skills observed (Y/N)†	Mid-course feedback (Y/N)
	NBME subject exams	Internal written exams	Oral exam or pres.	Faculty/resident rating	OSCE/SP exams	Other*		
Family Medicine Clerkship	✓			✓	✓	✓	Y	Y
Surgery Clerkship	✓			✓	✓	✓	Y	Y
Internal Medicine Clerkship	✓			✓	✓	✓	Y	Y
Psychiatry Clerkship	✓		✓	✓	✓	✓	Y	Y
Obstetrics/Gynecology Clerkship	✓			✓	✓	✓	Y	Y
Pediatrics Clerkship	✓		✓	✓	✓	✓	Y	Y
Clinical Neuroscience	✓			✓			Y	Y
Emergency Medicine			✓	✓		✓	Y	Y
Critical Care				✓			Y	Y
Sub-Internship				✓			Y	Y

† Are all students observed performing core clinical skills? (Yes or No)

\* Other Contribution to Grades:

For all clerkships, student grades also depend on Op-log and Professionalism

For clerkships there may also be items required to satisfactorily before the student has

“completed” the clerkship requirements:

- Family Med – Web case completion is required
- Surgery – reflective writing worksheet
- Psychiatry – weekly reading test reflects in “the clerkship director’s final grade report to the Dean of Student Affairs. This will then be reflected in the Dean’s letter when the student is applying for residency positions.”
- National EM Exam

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 1: Introduction to Health and Disease
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Janet Piskurich, PhD/Nadah Zafar, MD/Kathryn McMahon, PhD/Tanis Hogg, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Medical Education	16
Family Medicine	6
Pediatrics	2
Internal Medicine	3
Pathology	1
Emergency Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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Specific written learning objectives are provided for each instructional session in this unit. These objectives are available to students electronically through WebCT course management system. A compilation of these objectives are available for on-site inspection. The basic science topics included in this specific unit are listed, by discipline, in the topic appendix at the conclusion of this course description.

*Briefly summarize the objectives/content areas covered in the course.*

Introduction to Health and Disease is a 5 week introductory unit in the two-year longitudinal Scientific Principles of Medicine (SPM) course. The goal of SPM is to provide students foundational knowledge in the basic and clinical sciences organized by organ systems and “clinical presentations” (CPs) illustrating the clinical manifestations, etiology, course, and management of common problems presented to physicians. The CPs associated with this introductory unit include:

1. The Adult Periodic Health Examination
2. The Pediatric Periodic Health Examination
3. Sore Throat
4. Fever
5. Wound

The sequence of the clinical presentations has been structured so that the concepts developed during the study of one topic provide the foundation for subsequent topics. The basic medical science disciplines are interwoven. Basic information is provided for each clinical presentation including its clinical significance and a schematic representation of the relationships of the potential causes. These provide the basis for discussion of each of the underlying basic science principles.

Each clinical presentation includes a set of basic science learning objectives related to the appropriate scientific concepts of anatomy (gross and neuroanatomy, including medical imaging), behavioral science, biochemistry, cell and molecular biology, embryology, genetics, histology, immunology, microbiology, nutrition, pathology, pharmacology and physiology). Discipline experts provide instruction using various teaching methods including lectures, laboratories, and small group discussions. Both basic science and clinical faculty participate in this component of the instructional process.

### **Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets”) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Residents, fellows, and graduate students do not participate in the teaching of this unit.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This course is taught at one site only, the campus of the Paul L. Foster School of Medicine.

## REQUIRED COURSE FORM (Continued)

<b>Course title:</b>	Scientific Principles of Medicine Unit 1: Introduction to Health and Disease
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### Student Evaluation

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient exam	<input checked="" type="checkbox"/>	Other (describe) Small group tutor assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)

Yes	<input checked="" type="checkbox"/>	No	
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Students participate in a 25 item formative assessment each week covering material presented in the preceding week. Typically, these items are multiple choice questions written in the USMLE vignette format and are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students completed an anonymous on-line evaluation at the end of this unit of the SPM course. On a 5 point scale, with 1 representing a low level of agreement and a 5 a high level of agreement, students rated the elements of this course as follows (blanks indicate item was not included on given administration):

<b>Unit 1: Introduction to Health and Disease</b>		
<b>Questions</b>	<b>2010-11</b>	<b>2011-12</b>
This unit was well organized	4.1	4.0
The learning objectives were clearly identified	4.0	4.0
The course met the identified learning objectives	4.0	3.9
The order of clinical presentations made sense	4.0	3.9
The basic science material was well integrated.	4.1	4.0
The amount of material was reasonable.	4.0	3.8
I knew what I was supposed to be learning and why.	4.0	3.5
Evaluation methods were fair measures	3.8	3.6
The lectures helped me learn the material.	3.9	3.9
Clinical presentation 'schemes' contributed to my learning	NA*	4.0
The process work sheets contributed to my learning	NA*	3.7
The Work Case Examples helped me learn	4.5	4.1
Anatomy Labs helped me learn the material.	3.1	3.5
Microbiology Labs helped me learn the material.	3.2	2.6
Overall, I learned useful knowledge and/or skills during this unit.	4.4	4.4
N	60	85
Response rate	97%	100%

\*NA = Not Asked

As can be seen by the information provided in this table, students are generally satisfied with this particular Scientific Principles of Medicine unit. Changes that were initiated following the first (2009) iteration of this unit (e.g. decreased volume of reading, revision of learning objectives, modification in the sequence of clinical presentations, improved faculty collaboration to strengthen content integration), resulted in improved student ratings in 2010 that have persisted into the 2011 administration of the course. One outlier in student evaluations during the 2011-12 academic year was the microbiology laboratories. The unit committee met with student representatives to learn more about the student experience and the following changes are being proposed:

- The microbiology labs will be revised to emphasize clinically relevant cases as was done in well received microbiology labs in subsequent units.
- Due to the scheduled expansion in class size from the 2010 -11 to 2011-12, it was necessary to deliver this lab in two sessions by different instructors. A greater effort will be made in the 2012-13 class year to ensure that the two instructors are implementing this lab session consistently.

In addition to the specific changes noted above to improve the microbiology laboratory experience the unit directors are going to provide students with more explicit instruction on how information presented in this unit relates to the clinical presentations. We are hopeful that by doing so, students will have a better understanding of “what they are supposed to learn and why?”

*Identify major successes in the course and problems to be overcome.*

*Strengths:*

- This introductory unit is generally well received by students who appreciate unit organization and the opportunity to apply what they are learning to clinical problem solving in the weekly “Worked Case Example” sessions.
- Free-text comments indicate that students were particularly satisfied with the pathology and immunology instruction.
- Frequent feedback on performance through weekly formative examinations enables students to assess their own learning needs and areas in need of supplementation.

*Challenges:*

- Because this unit serves an introductory function and two of the clinical presentations (periodic health exam in the adult and in the child) are intended to highlight the concept of homeostasis, the direct link between basic science content and the clinical presentations are more difficult to make. We will address this challenge by being more explicit about how the basic science covered during these two weeks relates to the concept of homeostasis in health and illness.
- Students reported that there were some last minute changes to some sessions that they found confusing and stressful. We will reduce such changes to an absolute minimum in the future.

## REQUIRED COURSE FORM (Continued)

<b>Course title:</b>	Scientific Principles of Medicine Unit 1: Introduction to Health and Disease
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### TOPIC APPENDIX - INTRODUCTION TO HEALTH AND DISEASE:

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#### 1. ANATOMY

- Gross anatomy
  - Anatomical terminology
  - Major surface landmarks and subdivisions of the thorax and abdomen
  - Surface anatomy exam of donor cadavers
  - Thoracic and abdominal organs in situ (previous dissections in lab)
  - Overview of the pharynx and larynx (lectures plus previous dissections in lab)
  - Overview of lymph drainage patterns
  - Concept of potential spaces in body cavities and compartments
  - Relationships of surface landmarks to underlying viscera
  - Introduction to medical imaging
- Neuroanatomy
  - Overview of the peripheral nervous system (previous dissections and lecture in lab)
  - Overview of the pharynx
  - Introduced concept of cranial nerves with examples

#### 2. BEHAVIORAL SCIENCE

- Introduction to Psychoneuroimmunology
  - Relationship between stress and immune function
  - Stress and the endocrine axes
  - Psychosocial stress and neuro-endocrine-immune pathways
  - Effects of psychosocial stress on infection and allergy
  - Behavioral interventions

#### 3. BIOCHEMISTRY

- Biochemical basis of health
  - Common types of chemical bonds
  - Biochemical basis of cell structure and function
  - The genetic code and translation
  - General properties of amino acids



Academic Year: 2011-12

- Protein structure and function
- Post-translational modifications
- pH, pKa, pI
- Protein-ligand interactions
- Structure/composition of major dietary fuels
- Biochemical basis of fever and the inflammatory response
  - Factors affecting protein denaturation
  - NSAIDs: mode of action

#### **4. CELL AND MOLECULAR BIOLOGY**

- Eukaryotic cell organization and organelles
- Structure and function of the nucleus
- Structural and chemical properties of cell membranes
- Structural and chemical properties of oligosaccharides, glycoproteins, glycolipids and proteoglycans.
- Intracellular compartments
- Membrane and protein trafficking
- Cell biology of macrophages
- Cell signaling and common functional molecules
- Cancer biology, basic principles

#### **5. EMBRYOLOGY**

- Introduction to ectoderm, mesoderm and endoderm
- Development of the respiratory system
- Development of the pharynx

#### **6. GENETICS**

- Structure of human genes and chromosomes
  - DNA composition and structure
  - Chromatin/chromosome structure
  - Types of DNA sequences
- Human gene function
  - Central dogma
  - DNA replication
  - DNA transcription
  - RNA processing
  - Genetic code
  - Regulation of gene expression
- Genetic inheritance and variation
  - Cell cycle (meiosis and mitosis)

- Gene mutations

## **7. HISTOLOGY**

- Introduction to light, electron and virtual microscopy
- Epithelium: embryology, organization and distribution
- Membrane specializations of epithelia
- Connective tissue, molecular architecture, properties and distribution

## **8. IMMUNOLOGY**

- Introduction to innate and adaptive immunity
  - Cardinal features, cells and tissues
  - Complement system
- Adaptive immunity
  - Antigen processing and presentation
  - Antigen receptors and lymphocyte maturation
  - Lymphocyte selection and activation
  - Effector functions and memory
  - Antibody-based laboratory techniques
  - T-dependent and T-independent responses
  - Principles of vaccination
- Overview of immunity to microbes
  - Pyrogens and the immune system
- Introduction to immune deficiencies
- Introduction to hypersensitivity

## **9. MICROBIOLOGY**

- General principles of bacteriology: identification and classification, structure, growth and cell wall synthesis, normal flora, routes of infection and virulence factors, bacteremia and sepsis, epidemiology and vaccine preventable diseases
- Bacteria that cause sore throat and fever: Streptococcus species, Staphylococcus species, Neisseria, Corynebacterium diphtheriae, Bordetella pertussis, Clostridium tetani, Haemophilus influenza, Rickettsia rickettsii, Ehrlichia Chaffeinsis, Coxiella burnetii, Treponema pallidum, Borrelia species
- Bacterial genetics: chromosome structure, conjugation, plasmids, transformation, transduction
- General principles of virology: identification and classification, structure, replication, routes of infection and virulence factors, epidemiology and vaccine preventable diseases
- Viruses that cause sore throat and fever: Influenza, Parainfluenza, Coxsackie A, Rhinovirus, Measles, Mumps, Rubella
- General principles of parasitology: identification, protozoans, arthropods, helminths
- Parasites that cause fever: Plasmodium species

Academic Year: 2011-12

- Bacteria that cause wound infections: Staph aureus, Clostridium perfringens (introduction to anaerobes and bacterial toxins)
- Mechanisms of antibiotic resistance
- Laboratory techniques: light and fluorescence microscopy, sterile techniques and safety, gram and acid fast stains, catalase and motility tests, media, antibiotic sensitivity

#### **10. NUTRITION**

- Nutritional needs and consequences for childhood growth
- Growth charts and parameters of normal growth
- Age-appropriate dietary guidelines
- Protein needs during stress and starvation

#### **11. PATHOLOGY**

- Cellular responses to stress and toxic insults: adaptation, injury, and death
  - Introduction to pathology
  - Overview of cellular responses
  - Adaptations of cellular growth and differentiation
  - Cellular injury, aging and apoptosis
  - Intracellular accumulations, pathologic calcifications
- Acute and chronic inflammation
  - Mediators
  - Morphologic patterns
  - Outcomes, systemic effects and consequences
- Pathologic aspects of wound healing and repair

#### **12. PHARMACOLOGY**

- Pharmacokinetics
- Pharmacodynamics
- Antipyretic agents
- Antimicrobials: cell wall synthesis inhibitors

#### **13. PHYSIOLOGY**

- Homeostasis and homeostatic mechanisms
  - Thermoregulation, cytokines
  - Temperature homeostasis, environmental challenges
  - Homeostasis, negative and positive feedback
- Transport mechanisms
  - Membrane transport mechanisms and cell volume regulation
- Vascular permeability

Academic Year: 2011-12

- Vascular endothelia, edema, anaphylaxis
- Starlings Law of capillary filtration
- Sepsis and septic mechanisms
- Distribution and composition of bodily fluids
- Basics of chemical signaling and basic reflex arc

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit: Musculoskeletal and Integumentary Systems
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Richard Brower, MD/Asa Black, PhD/Elmus Beale, PhD/Dale Quest, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Medical Education	16
Internal Medicine	9
Orthopedic Surgery	5
Neurology	1
Family Medicine	4
Emergency Medicine	2
Pathology	3
Psychiatry	1
Anesthesiology	1
Dermatology	1

### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Specific written learning objectives are provided for each instructional session in this unit. These objectives are available to students electronically through the WebCT course management system. A compilation of these objectives are available for on-site inspection. The basic science topics included in this specific unit are listed, by discipline, in an appendix attached to this course description.

*Briefly summarize the objectives/content areas covered in the course.*

This unit of the SPM course provides an integrated presentation of major basic science and clinical concepts related to the musculoskeletal and Integumentary systems (“Skin and Bones”), including information on the peripheral nervous system. The unit is organized and delivered in the context of 8 relevant, common, and broadly applicable Clinical Presentations (CPs) as follows:

- 1) Bone Fractures and Dislocations
- 2) Joint Pain
- 3) Musculoskeletal Lumps and Masses

- 4) Limp and Deformity
- 5) Numbness and Pain
- 6) Weakness and Loss of Motion
- 7) Skin Lesions: Rash (Macules, Papules, Boils & Blisters)
- 8) Eczema and Pruritus
- 9) Hair and Nail Disorders

Typically a CPs is delivered at the beginning of a week long period of instruction in a one hour didactic session presented by an experienced clinician. These presentations include a definition and description of the clinical significance of the CP and the description of a hierarchical diagnostic “scheme” beginning with the problem presentation by the patient (e.g., joint pain) and descending through a series of decision points to specific categories of diagnoses. In discussing the clinical reasoning associated with the scheme, the presenter forecasts basic science topics and concepts necessary for understanding underlying processes at each branch point in the decision tree. These scientific concepts are then elaborated in an integrated week or so of instruction consisting of lectures, interactive problem solving sessions, and laboratory sessions, culminating in a two-hour small group “worked case example” session in which small groups of students and a physician faculty tutor analyze patient cases based on the clinical scheme presented at the beginning of the week and the basic science content presented based on that scheme. These sessions are designed to facilitate the consolidation of basic science knowledge in the context of the practical diagnostic scheme provided for each clinical presentation.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents	✓	
Graduate Students		✓
Postdoctoral		✓

Fellows		
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***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Residents may occasionally participate as small group facilitators in “worked case example” sessions. Typically, they do so primarily as “assistants” to experienced faculty members. All participants in worked case example sessions are provided with detailed instructions and session plans including sequenced case materials, questions and answers, illustrative power-point slides, etc. The unit director(s) are also readily available to answer questions. Whenever possible, new worked case example facilitators are encouraged to observe a session prior to participating as the facilitator of record.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

The course will be taught at only one site, the Medical Education Building on the campus of the Paul L. Foster School of Medicine.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	Musculoskeletal and Integumenatry Systems
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
	Fill-in, short answer questions		Problem-solving written exercises
	Essay questions or papers		Presentations
	Oral exams		Preceptor ratings
	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

Yes	<input checked="" type="checkbox"/>	No	
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Faculty complete small group evaluation forms on the students in their WCE sessions. This form includes a free-text comment section. This form is uploaded into the student's e-portfolio.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*



This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students completed an anonymous on-line evaluation at the end of this unit of the SPM course. On a 5 point scale, with 1 representing a low level of agreement and a 5 a high level of agreement, students rated the elements of this course as follows (blanks indicate item was not included on given administration):

<b>Unit 2 Evaluation Data: Musculoskeletal and Integumentary Systems</b>	<b>2010-2011 Academic Year</b>	<b>2011-2012 Academic Year</b>
This unit was well organized.	3.4	2.5
The learning objectives clearly identified.	3.5	3.0
The course met identified learning objectives.	3.6	3.2
The order of clinical presentations made sense.	3.9	3.2
The basic science material was well integrated.	3.8	3.3
The amount of material was reasonable.	2.9	2.7
I knew what I was supposed to be learning and why.	3.6	3.0
The evaluation methods were fair	3.2	3.0
The Clinical presentation "schemes" helped me learn.	3.9	3.3
The process work sheets helped me learn the material.	3.6	--
The lectures helped me learn the material.	3.7	3.7
The Work Case Examples helped me learn the material.	4.4	4.2
Anatomy Labs helped me learn the material.	2.4	2.7
Physiology Labs helped me learn the materials	2.9	--
Microbiology Labs helped me learn the material.	--	2.8
Overall I learned useful knowledge and/or skills during this unit.	4.2	4.1
N	56	*64
Response rate	90%	*76%

(\*Please note: Due to technical difficulties responses from several students were lost, nearly 100% of students made an effort to provide end of course evaluation.)

Previously, this unit was titled Musculoskeletal System and Neurology and included several clinical presentations related to the central nervous system (e.g., Headache, Seizure and Epilepsy, Stroke, Altered Mental Status). Student evaluations of the 2010-11 iteration of the unit suggested that the volume and complexity of the material that needed to be mastered was overwhelming. Unit faculty leaders agreed that this unit should be decompressed and opted to shift most of the predominantly neurological CPs to the year 2 unit on special senses (previously titled Dermatology and Special Senses) and replacing the 5 neurological CPs with 3 CPs dealing with dermatological presentations.

As can be seen from the student evaluation data summarized above, this change did not result in a significant improvement in student perceptions of course quality. While students acknowledged gaining useful knowledge in this unit, students recorded lower evaluations in several areas including course organization, clarity of goals and objectives, order of clinical presentation, and quality of clinical schemes as aids to learning. Importantly, there was no improvement in the level of agreement with the item “The amount of material was reasonable.” In aggregate, students were not positive in their evaluation of the quality of the anatomy or microbiology laboratory experiences provided as part of this unit in its revised form.

Free-text responses revealed that many students continued to feel overwhelmed by the volume of information and that the faculty had not provided them with a clear “road map” to assist them in knowing what they needed to learn and why. There was still a considerable volume of material dealing with the central nervous system and some students commented that the dermatological components of the unit felt like “add-on” material. A number of faculty members participating in the delivery of this unit came to the conclusion that the amount of material covered dealing with the central nervous system was excessive, given the fact that the much of this material was intended to be shifted to the special senses unit in year 2.

A number of students also voiced concern about what they felt was less than optimal integration of basic science material. Many noted that anatomy instruction was disorganized and poorly integrated with the CPs. A number of critical comments were made about the role of “self-taught sessions” in pharmacology. A number of students expressed a preference for lecture-based instruction in this discipline because they felt it was difficult to master the material on their own based upon the instructional “monographs” and power point materials provided by the instructor. Plans for improvement are described in the next section.

*Identify major successes in the course and problems to be overcome.*

**Strengths:**

- An early overview of the nervous system facilitates integration of nervous system topics throughout the other organ systems in the curriculum
- The musculoskeletal content was generally well received despite the overall volume of material covered in this unit
- Students acknowledged the importance of the material and feel they gained valuable knowledge and skills

**Challenges/Problems:**

- Large total amount of new and challenging content covering three systems and much ‘foundational’ material across disciplines
- Students criticized the unit for poor organization but without a clear consensus as to recommended steps – possibly due to the total content overload and lack of an adequate and early explanation of Unit objectives and rationale

- Labs, especially in anatomy, heavily criticized as inefficient (with “student-teaching-student” system an inconsistent/unreliable method of instruction, and limb anatomy covered too quickly)

**Improvement plan:**

As a result of a pre-planned retrospective unit review (“De-briefing”), including the assessment and evaluation data, the Course and Unit Directors have developed a preliminary unit improvement plan which includes the following basic components:

- Rename the Unit “Neuromusculoskeletal and Integumentary Systems”
- Move the integumentary system clinical presentations to the front of Unit 2, creating a logical ‘bridge’ from the last clinical presentation of Unit 1 (“Wound”)
- Develop specific over-arching “Unit Goals” to be distributed to the students with brief explanatory remarks at the beginning of the Unit (to provide additional context and a ‘roadmap’)
- Continue to include an overview of the nervous system and detailed coverage of the peripheral nervous system in Unit 2 (limiting the central nervous system materials to a schematic understanding of the functional anatomy of the major pathways for sensation, voluntary movement and autonomic control)
- Re-sequence the anatomy content to provide a better conceptual foundation earlier in the unit, to be followed by lab sessions (expanding the labs by one additional session to allow for two sessions for the lower extremity)

The following steps are planned to improve the quality of the “Students-Teaching-Students” (STS) component of anatomy instruction. This plan is based on a focus group discussion with the students selected to serve as “near peer tutors” for anatomy in 2012-13.

- We are going to increase the number of instructors available for each lab.
- Student tutors will create a repository of effective STS resources (e.g. handouts, lesions plans)
- Faculty will provide a “STS Template”—a recommended sequence of events for the session.
- We will hold a teacher-Tutor pre-lab meeting to review objectives for the upcoming session.
- Look for opportunities to incorporate instruction on simple surgical/diagnostic procedures in as many labs as possible to highlight clinical relevance of session.

## **ANATOMY, EMBRYOLOGY, NEUROANATOMY**

### **MUSCULOSKELETAL SYSTEM**

#### ***Gross Anatomy***

- Introduction to the musculoskeletal system and the limbs
- Superficial and intermediate layers of the back
- Nerves and muscles of the face and neck
- Shoulder and deep back regions
- Pectoral region
- Anterior and medial thigh
- Axilla
- Gluteal region and hip
- Form and function of the brachial plexus
- Posterior thigh and knee
- Arm elbow and forearm
- Leg and dorsum of the foot
- Forearm, hand and wrist
- Leg, sole and ankle
- Vasculature/blood supply and lymphatic drainage of the limbs

#### ***Histology***

- Introductory histology of cartilage and bone
- The cytoskeleton
- Cell communication

#### ***Embryology***

- Ontogeny of the musculoskeletal system (normal and abnormal limb formation)
- Genetic regulation of limb formation

### **NEUROLOGICAL SYSTEM (in addition to overlapping topics listed above)**

#### ***Gross anatomy (overlapping with neuroanatomy)***

- Anatomy and functions of the cervical, brachial and lumbosacral plexuses

#### ***Neuroanatomy***

- Introduction to neuroanatomy
  - Anatomical organization and landmarks of the brain, brainstem, cerebellum and spinal cord
  - Spinal cord and major cerebral arteries

- Cranial nerve and prototypical brainstem syndromes
- Location and role of the thalamus
- Sensory tracts
  - Spinothalamic – anterolateral system
  - Dorsal column – medial lemniscus system
  - Trigeminal nerve and the trigeminothalamic system
- Motor tracts
  - Motor cortex, the corticobulbar tract and the corticospinal tract
  - Upper motor neuron and lower motor neuron structures, functions and syndromes
  - Reticulospinal and tectospinal tracts
  - Multidimensional neuroanatomy of locomotion
  - Components of the muscle stretch, Golgi tendon, and flexor withdrawal and crossed extension reflexes
- Anatomical perspectives on radiculopathies, plexopathies and peripheral neuropathies

### ***Embryology***

- Nervous system development
  - Overview of nervous system development with emphasis on the peripheral nervous system

## **INTEGUMENTARY SYSTEM**

### **Neuroanatomy**

- Dermatomes
- Innervation of the skin

### **Histology**

- Histology of the skin, including cell types, layers, glands, sensory receptors and hair

### **Embryology**

- Embryology of the skin and its derivatives

## **2. BIOCHEMISTRY**

### **MUSCULOSKELETAL**

- Biochemistry of the extracellular matrix
- Basic enzymology
- Molecular aspects of joint tissue turnover
- Fuel oxidation and ATP generation
- Cell communication (with histology)
- Muscle metabolism and metabolic myopathies
- Biochemistry of collagen diseases
- Disorders of nucleotide metabolism

**NEUROLOGICAL (OVERLAP WITH MUSCULOSKELETAL TOPICS ABOVE)**

**INTEGUMENTARY**

- Biochemistry of scurvy

**3. GENETICS**

**MUSCULOSKELETAL**

- Introduction to medical genetics and associated laboratory methods
- Genetic inheritance and variation
- Genetic mapping, measuring genetic distance/linkage
- Detection of genetic variation and genetics of bone disease
- Genetics and molecular biology of the muscular dystrophies
- DNA/Gene repair systems
- Genetic basis of inherited and sporadic tumors

**NEUROLOGICAL**

- Trinucleotide repeat diseases (including Huntington's disease)
- Mitochondrial disease

**4. MICROBIOLOGY/IMMUNOLOGY**

**MUSCULOSKELETAL**

- Defense against encapsulated bacteria (opsonization)
- Serum protein electrophoresis, normal and abnormal patterns
- Multiple myeloma, fractures and recurrent infections
- Immunology of rheumatoid disease
- Immune-mediated neuromuscular disorders
  - Guillain-Barre syndrome
  - Chronic inflammatory demyelinating polyneuropathy
  - Myasthenia gravis
  - Lambert-Eaton myasthenic syndrome
  - Polymyositis, Dermatomyositis
- Bone infections/osteomyelitis
- Virulence factors (toxins, enzymes), antibiotic resistance, bacteriological differentiation/identification
- Pathogenesis and laboratory diagnosis of bacterial and parasitic forms of myositis
- Infectious arthritis
- Central and peripheral tolerance
- Tuberculosis

- Anergy

## **NEUROLOGICAL**

- Infections causing weakness and loss of motion (overlap with Musculoskeletal above)
- Immune mediated neuropathies (overlapping with Musculoskeletal topics listed above)
- Immune mediated neuromuscular junction disorders (overlapping with Musculoskeletal topics listed above)
- Molecular mimicry
- Neurotropic viruses

## **INTEGUMENTARY**

- Microbiology of the skin, including rashes and local skin infections (viral, bacterial, fungal)
- Immune defenses of the skin
- Immune responses to infection affecting the skin
- Autoimmune disorders with cutaneous manifestations

## **5. PATHOLOGY**

### **MUSCULOSKELETAL**

- Pathology of bone fractures
  - Osteopenia
  - Osteoporosis
  - Bone tumors
  - Fracture types
  - Pathological consequences of bone fractures (local and systemic)
  - Stages of fracture repair
- Pathology of osteoarthritis, rheumatoid arthritis, seronegative spondyloarthropathies
- Pathology of infectious arthritis
- Pathology of gout and pseudogout
- Mechanisms and histopathological features of neoplasia
- Pathology of musculoskeletal lumps and masses (including metastatic disease)
- Pathology of muscular dystrophy
- Pathology of non-infectious myositis
- Metabolic and toxic myopathies

### **NEUROLOGICAL**

- Pathology of motor neuron disease
- Pathology of neuromuscular junction diseases
- Peripheral nerve disease
- Peripheral nerve and nerve sheath tumors (including neurofibromatosis types 1 and 2)

## **INTEGUMENTARY**

- Skin pathology

## **6. PHARMACOLOGY**

### **MUSCULOSKELETAL**

- Pharmacology of bone turnover and healing
- Chemotherapy concepts: anti-neoplasia
- Pain and analgesics
- Drugs for arthritis
- Aminoglycoside toxicity

### **NEUROLOGICAL**

- Pharmacology of peripheral nerve diseases
- Pharmacology of the somatic efferent nerves, neuromuscular junction and skeletal muscle

## **7. PHYSIOLOGY**

### **MUSCULOSKELETAL**

- Mechanisms of bone fracture and healing
- Cartilage damage and healing
- Mechanics of skeletal muscle contraction
- Bone blood flow
- Hormonal control of calcium and phosphate
- Calcium absorption, metabolism in relation to bone health

### **NEUROLOGICAL**

- Basic neurophysiology – membrane and action potentials, nerve conduction, synaptic transmission and neurotransmitters
- Neuron types, supporting cell types and their functions
- Axonal transport
- Proprioception and basic spinal reflexes
- Function of sensory receptors

## **INTEGUMENTARY**

- Itch receptors and neural pathways

## **8. BEHAVIOR**

### **MUSCULOSKELETAL**

- Psychosocial aspect of pain
  - Behavioral theories of pain and suffering
  - Chronic pain and mental health
  - Psychological assessment of pain



Academic Year 2011-12

- Placebo effect

## **9. NEUROLOGY**

- Neurophysiological basis of clinical electroencephalography

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 3: Gastrointestinal System
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Kirk Baston, MD/David Osborne, PhD/Marc Zuckerman, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Medical Education	13
Internal Medicine	8
Radiology	1
Surgery	2
Family Medicine	1
Emergency Medicine	1
Pathology	1

### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	✓	No	
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Specific written learning objectives are provided for each instructional session in this unit. These objectives are available to students electronically through WebCT course management system. A compilation of these objectives are available for on-site inspection. The basic science topics included in this specific unit are listed, by discipline, in the topic appendix attached to this course description.

*Briefly summarize the objectives/content areas covered in the course.*

The gastrointestinal unit in SPM consists of the following clinical presentations distributed over a 5 week time frame:

1. Dysphagia
2. Nausea and Vomiting
3. Diarrhea
4. Constipation
5. Abdominal pain
6. GI Bleed

Prior to the 2011-12 AY, this unit was paired with clinical presentations covering hematological disorders in a single, GI/Hem unit. As part of the revision of the sequencing of units related to changes in

Musculoskeletal/Neurology Unit and the Dermatology/Special Senses Unit, described elsewhere in this data base, we re-examined the entire sequencing and pace of all of the units in the Scientific Principles of Medicine course and the decision was made to uncouple the earlier GI/Hematology clinical presentations and offer them in the context of their own units. This also enabled us to end the GI unit prior to the winter break and start the Liver/Hematology unit at the beginning of the second semester of the academic year.

These clinical presentations follow the general path of food passage through the gastrointestinal tract and highlight the basic functions and abnormalities related to motility, secretion, digestion, and absorption by organs associated with the GI tract. Each provides a context for the presentation of basic science content related to the function of the mouth and esophagus, the stomach, the small intestine and the colon. The contributions of accessory organs are also presented. Pathology and etiologies of gastrointestinal disorders and region specific diseases are discussed in the context of the underlying basic science. In addition, this unit provides an introduction to general concepts related to the dual function of the nervous and endocrine systems in controlling organ function. Students are introduced to the differences smooth muscle contraction in contrast to the skeletal muscle contraction that the students encountered in the preceding unit. The themes of organ function control and smooth muscle function are revisited and reinforced in subsequent units of the SPM course based on the foundations laid in the GI unit.

During each presentation, clinician medical educators introduce the clinical presentation and the basic scheme for each presentation. Basic science educators subsequently present the basic science components related to anatomy, biochemistry, cell biology, embryology, histology, genetics, immunology, microbiology, pathology, pharmacology and physiology. At the end of the week, students meet with clinicians in small groups for processing cases using the information gathered during the week. This “deliberate practice” of processing through each scheme for clinical diagnostics reinforces the relationship between the basic sciences and the clinical application of the knowledge. In addition, this practice allows the students to directly apply the knowledge gained during the week to clinical practice.

Examples of the basic science topics addressed in this unit can be found in the Topic Appendix at the end of this course description.

### *Preparation for Teaching*

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

Academic Year: 2011-12

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	<b>Yes</b>	<b>No</b>
Residents*		✓
Graduate Students		✓
Postdoctoral Fellows		✓

\*Please note: On occasions residents may accompany faculty members from their respective clinical departments to observe the Worked Case Example process and to learn about the scheme inductive approach to clinical reasoning. They do not have responsibility for leading these sessions or for assessing student performance.

*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

Not applicable.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This unit of instruction is offered at one site only, the campus of the Paul L. Foster School of Medicine.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	Scientific Principles of Medicine Unit 3: Gastrointestinal System Unit
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group evaluations

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early those areas in which they may need to devote additional time or seek additional help from faculty. Students are provided a listing of the objectives associated with missed items on their formative quizzes to facilitate targeted review.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed

and provided to the student in their e-portfolios. The summary narratives are intended to be provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, could be referred to the Grading and Promotion committee for action.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing "Strongly disagree" and 5 indicating "Strongly Agree."

<u>Unit 3Gastrointestinal System Evaluation Data</u>	<u>2010-11: GI/HEM</u>	<u>*2011- 12 :GI</u>
This unit was well organized.	4.5	4.1
The learning objectives clearly identified.	4.4	3.9
The course met identified learning objectives.	4.4	3.9
The order of clinical presentations made sense.	4.3	4.2
The basic science material was well integrated.	4.6	4.1
The amount of material was reasonable.	4.2	4.0
I knew what I was supposed to be learning and why.	4.4	3.9
The evaluation methods were fair	4.1	3.6
The Clinical presentation "schemes" helped me learn.	4.2	4.2
The process work sheets helped me learn the material.	4.0	3.9
The Work Case Examples helped me learn the material.	4.1	3.9
Work Case Examples helped me learn the material.	4.7	4.5
The self-taught modules contributed to my learning	NA	3.5
Anatomy Labs helped me learn the material.	3.4	3.3

Academic Year: 2011-12

Microbiology Labs helped me learn the material.	3.5	3.0
I learned useful knowledge and/or skills	4.6	4.4
N	44	79
Class size at date	62	85
Response Rate	71%	93%

\*Please note: in the 2011-12 Academic Year, the previously offered combine GI/HEM unit was divided into two separate units—GI and Liver/Hematology. This was done for logistical reasons (to avoid having a course/unit span the winter holiday break) and to decompress the SPM course. The content, goals, and objectives of the two units are unchanged.

*Identify major successes in the course and problems to be overcome.*

Successes:

- Students like the logical order for the unit. It makes sense to them.
- There is a very strong connection between the basic science and clinical content.
- For the most part students endorse the pace of this unit.

Challenges:

- Time is short for the coverage of material with some weeks having two clinical presentations which muddies the order of the material covered in work case examples and formative exams.
- Postponing covering the liver until the next unit is problematic given the status of the liver as a major accessory organ for the gastrointestinal system. However, we appear to have few options given the amount of time available and the timing of the winter holiday break.

We have carefully reviewed these two challenges and feel that student learning is not adversely affected. These problems are due to time constraints and the placement of the winter holiday break. Short of a major change in the academic calendar, which would likely produce other problems, it appears that we will have to live with these minor problems.

Topic Appendix: Gastroenterology Unit

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**GASTROENTEROLOGY TOPICS**

**Anatomy/Histology/ Embryology**

- Anatomy (Gross and Neuro), Embryology (ontogeny of gastrointestinal organs), Histology (microscopic anatomy of the gastrointestinal organs)
- Histology focuses on cross sectional structure of the GI tract proper
- Structure of the oral cavity, parotid region, pharynx and esophagus
- Anterior abdominal wall, Posterior abdominal wall, peritoneum
- Abdominal cavity blood supply and nerve supply
- Lymphatic drainage and spleen, hepatic portal system
- Stomach, small intestine, colon, rectum and anus structure
- Liver and pancreas (focus is on accessory functions for gastrointestinal system)

**Biochemistry**

- Glycogen Storage Diseases

**Immunology**

- Immune mechanisms of Sjogren's syndrome and systemic sclerosis (Scleroderma)
- Immune defense mechanisms of the GI tract
- Oral vaccination
- Immune mechanisms in Celiac disease
- Immune mechanisms in Immune-mediated Inflammatory Bowel Disease (IBD)
- Introduction to Tumor Immunology

**Microbiology**

***Regional***

- Introduction to three viral families associated with Gastroenteritis: Reoviridae, Caliciviridae and Astroviridae
- Introduction to Adenovirus with emphasis on the Enteric Adenoviruses 40 and 41
- The role of Helicobacter pylori and Campylobacter species in Gastritis and Enteritis:
- Common bacterial and viral causes of diarrhea
- Pathogenic E. coli and Shigella infections
- How antibiotic use can lead to diarrhea



- Parasitic causes of diarrhea
- Distinct microflora in different regions of the intestinal tract causing peritonitis.
- Clinical manifestations, Life cycles, transmission, microscopic diagnosis of associated with nematodes, cestodes and trematodes which cause abdominal distention and discomfort.
- Abnormal Liver function due to infection: Classification and differentiation between hepatitis A, hepatitis B, Hepatitis C, Hepatitis D , Hepatitis E and Hepatitis G viruses according to viral family, virion architecture, disease characteristics, replication and transmission.
- Infectious etiologies of lymphadenopathy
- Hepatomegaly or Hepatosplenomegaly due to liver parasitic infections
- Effects HIV-AIDS on gastrointestinal functions

### ***Systemic***

- Microbiological causes of food poisoning
- Peritonitis

### **Pathology**

- Congenital abnormalities of the GI tract
- Inflammatory disorders
- Infectious diseases
- Obstructive disorders
- Dysplasia
- Neoplasia

### **Pharmacology**

- Gastric absorption of Drugs
- Drugs for Gastric acid control and peptic ulcer disease
- Antiemetics
- Antidiarrheals
- Laxatives

### **Physiology**

- Topics related to regulation and control of secretion, motility, digestion and absorption within the gastrointestinal system
- Mastication/salivary secretion
- Swallowing reflex/ primary and secondary peristalsis
- Gastric motility

Academic Year 2011-12

- Gastric acid and enzyme secretions
- Digestion and absorption of diet
- Hormonal control of gastrointestinal function
- Mass movement vs peristalsis
- Defecation reflex
- Salivary and pancreatic amylase
- Pancreatic zymogen secretion and activation within the small intestine
- Bile metabolism and function
- Digestion and absorption of nutrients
- Adaptations to abnormalities associated with each of the above processes

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 4: Liver/Hematology
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Kirk Baston, MD/David Osborne, PhD/ Marc Zuckerman, MD/Javier Corral, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Department of Medical Education	12
Department of Internal Medicine	8
Pathology	2
Family Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

As previously noted in the description of the Gastrointestinal unit of the Scientific Principles of Medicine (SPM) course, in past years the Gastrointestinal and Hematological systems were linked in a single, longer unit of instruction. As part of an overall re-structuring of the sequence of units, and to address scheduling difficulties, the decision was reached to separate the GI and Hematology into two separate units. This 6 week unit of SPM consists of the following clinical presentations:

1. Abnormal liver function tests/Jaundice
2. Abdominal Distention
3. Abnormal hemoglobin
4. Abnormal white blood cells
5. Lymphadenopathy
6. Coagulation abnormalities

The abnormal liver function tests/jaundice presentation and the abdominal distention presentation serve as a bridge from the gastrointestinal system. Normal and abnormal aspects of the liver are discussed as well as the clinical findings that can arise in disordered states. The third and fourth clinical presentations center on abnormalities of red blood cells and white blood cells and address normal structure and function as well as the range of diseases that can be seen. Significant emphasis is placed on laboratory medicine and interpretation of peripheral blood smears. The fifth clinical presentation addresses lymph nodes. Normal function is covered with a strong emphasis on the immunological aspects of the lymph node. Clinical evaluation of lymphadenopathy is discussed as well as the range of diseases that can affect the lymph

nodes including Hodgkin and non- Hodgkin lymphomas. Clinical presentation 6 addresses disorders of coagulation. This week is a comprehensive tour of hemostasis and thrombosis. Disorders of bleeding and thrombosis are covered with a strong emphasis on laboratory evaluation of these disorders

Clinician medical educators introduce the clinical presentation and the basic scheme for each presentation. Basic science educators subsequently present the basic science components related to anatomy, biochemistry, cell biology, embryology, histology, genetics, immunology, microbiology, pathology, pharmacology and physiology. At the end of the week, students meet with clinicians in small groups review and analyze cases using the information covered during the week. This “deliberate practice” of processing through each scheme for clinical diagnostics reinforces the relationship between the basic sciences and the clinical application of the knowledge.

The basic science topics addressed in this unit can be found in the Topic Appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents	✓	
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

An advanced resident participated in worked case example sessions for this unit. The resident was provided the same materials as all other faculty members. The unit director observed this resident and

gave him feedback on group process and is confident in this resident's ability to provide excellent instruction and guidance.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This course is taught solely on the campus of the PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine Unit 4: Liver/Hematology
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty. Students are provided a listing of the objectives associated with missed items on their formative quizzes to facilitate targeted review.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the associate dean for student affairs, the senior associate dean for

medical education and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to be provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, could be referred to the Grading and Promotion committee for action.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing “Strongly disagree” and 5 indicating “Strongly Agree.”

Hematology Evaluation Results	2010-2011: Gastrointestinal/Hem atology	*2011-2012: Liver/ Hematology
Well Organized	4.5	4.4
Learning objectives clearly identified.	4.4	4.3
The course met identified learning objectives.	4.4	4.3
The order of clinical presentations made sense	4.3	4.3
Basic Science material was well integrated.	4.6	4.3
Amount of material presented was reasonable.	4.2	4.1
I knew what I was supposed to be learning and why.	4.5	4.2
Evaluation methods were fair	4.1	4.0
Clinical presentation "schemes" contributed to my learning	4.2	4.2
Process work sheets contributed to my learning	4.0	4.1
Lectures helped me learn the material.	4.1	4.3
Work Case Examples helped me learn the material.	4.7	4.5
Anatomy Labs helped me learn the material.	3.4	3.1
Self-taught modules contributed to my learning	NA	3.9
I learned useful knowledge and/or skills	4.6	4.5
N	44	82
Class size at date	57	83
Response Rate	77%	99%

\*Please note: in the 2011-12 Academic Year, the previously offered combine GI/HEM unit was divided into two separate units—Unit 3: GI, and Unit 4, Liver/Hematology. This was done for logistical reasons

(to avoid having a course/unit span the winter holiday break) and to decompress the SPM course. The content, goals, and objectives of the two units are unchanged.

*Identify major successes in the course and problems to be overcome.*

Successes:

- This unit is well received by the students and evaluations are very good
- Well organized
- Student evaluations indicate that work case examples were very strong

Challenges:

The unit has a very large proportion of material for the amount of time allotted for its delivery. Some sections such as liver and lymph node need more time. We have been very efficient at placing this large amount of material in the unit but we should continue to discuss this issue in order to maximize student understanding. We will be discussing this further with the SPM directors.



Topic Appendix: Liver/ Hematology Unit

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**Anatomy/Histology/ Embryology**

- Structure of Blood
- Bone marrow and blood development
- Lymphatic tissues including spleen

**Biochemistry**

- Iron/ Hemoglobin metabolism
- Erythrocyte metabolism
- Plasma protein synthesis and processing
- Serum markers of disease states
- Hematologic disorders as models of biochemical disorders

**Genetics**

- Genotypes and Allelic Frequency
- Genetics of Sickle Cell Anemia

**Immunology**

- Immune function of the spleen
- Immunology of HIV
- Mechanisms of immune-mediated anemia
- Immunology of blood transfusion
- Agglutination reactions
- Cytokines in leukocyte maturation
- Leukocyte biology
- Immunology of Bone marrow transplantation
- Review of T and B cell activation
- Review of the organization and function of lymph nodes
- Sarcoidosis
- Immune mechanisms of platelet destruction
- Immune mechanisms in Wiskott - Aldrich syndrome
- Antiphospholipid syndrome
- Waldenström's Macroglobulinemia and Multiple Myeloma

Academic Year \_\_\_\_\_

- Significance of + Coombs' test in neonates

### **Microbiology**

- Pathogenesis of HIV in terms of transmission, cell entry, genome replication and cell exit.
- Opportunistic infections and/or associated diseases in patients with HIV-AIDS
- Mononucleosis caused by Epstein Barr Virus (EBV): virion structure, genomic architecture, transmission, spread and evasion of the immune system.
- Epstein-Barr Virus-induced lymphoproliferative Diseases
- Infectious etiologies of lymphadenopathy
- Hemoflagellates
- Hepatomegaly or Hepatosplenomegaly due to liver parasitic infections
- Viral hemorrhagic fever
- Platelet levels as a sign of infection
- How disruption of normal flora can lead to depression of Vitamin K levels and bleeding

### **Pathology**

- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of liver disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of red cell disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of white cell disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of lymph node disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of disorders involving coagulation

### **Pharmacology**

- Hematopoietic and megakaryocytic growth factors
- Anticoagulant, thrombolytic and antiplatelet drugs
- Chelators and heavy metal therapies

### **Physiology**

- General structure and functions of blood
- Hemopoiesis/erythropoiesis
- Hemostasis
- Relation of blood composition to osmosis/osmotic pressure

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 5: Cardiovascular/Pulmonary
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Nadah Zafar, MD/Herb Janssen, PhD/David Osborne, PhD/George Martinez-Lopez, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Department of Medical Education	17
Department of Internal Medicine	10
Department of Emergency Medicine	7
Department of Anesthesiology	1
Department of Family Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

Specific learning objectives are published for each of the 12 component clinical presentations included in this integrated unit. The objectives were developed and reviewed by the clinical and basic science faculty to insure appropriate coverage and integration of the material. The objectives are available online for both the faculty and the students. A list of the basic science topics addressed in this unit can be found in the topic appendix following this description. The clinical presentations addressed in this unit of SPM are:

1. Chest discomfort
2. Mediastinal mass (self-taught unit)
3. Abnormal heart sounds
4. Heart murmurs
5. Syncope
6. Palpitations
7. Abnormal arterial pulse
8. Abnormal blood pressure, hypertension and shock
9. Dyspnea
10. Cough and wheezing
11. Cyanosis
12. Hemoptysis

The sequence of these clinical presentations has been structured so that the concepts developed during the study of one topic provide a foundation for the subsequent topic. The basic medical science disciplines are interwoven. Basic information is provided for each clinical presentation including a brief definition and a statement of its clinical significance. A list of the potential causes for the presentation is provided along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation provide the basis for discussion of each of the basic science principles, including underlying anatomic, biochemical, and pathophysiological concepts.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the Department of Medical Education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		x
Graduate Students		x
Postdoctoral Fellows		x

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This unit is taught on the campus of the PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Unit 5: Cardiovascular/Pulmonology
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment form

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment weekly. Typically, these items are multiple choice questions written in the USMLE vignette format and are selected from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group facilitators complete an evaluation on student participation and performance in WCE sessions. This evaluation includes a free text component for narrative comments. At the end of the year the associate dean for student affairs, the senior associate dean for medical education, and the college masters review all student comments and compile a summary narrative. This is formative feedback. However, if there are serious problems that have not been resolved over the course of the year, the student can be referred to the grading and promotion committee for action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

We have the faculty members needed to deliver the content of this unit. Educational space is ample with state-of-the-art educational technology resources and a clinical learning and simulation center that is outstanding. The unit is supported by a full-time course coordinator and a full-time assessment coordinator.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous end-of-unit on-line evaluations utilizing a 5 point scale with a 1 indicating disagreement/dissatisfaction and a 5 indicating a high level of agreement/satisfaction.

<b>Cardiovascular &amp; Pulmonary Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.9	3.8
The learning objectives were clearly identified.	4.2	3.9
The course met the identified learning objectives.	4.1	3.9
The order of clinical presentations made sense to me.	4.0	3.8
The Basic Science material was well integrated.	4.1	4.1
The amount of material presented was reasonable.	4.1	3.6
I knew what I was supposed to be learning and why.	4.2	4.0
The evaluation methods were fair	4.1	3.7
The Clinical presentation "schemes" contributed to my learning.	4.1	3.8
The process work sheets contributed to my learning	4.1	3.8
The lectures helped me learn the material.	4.0	3.9
The Work Case Examples helped me learn the material.	4.6	4.3
The self-taught modules contributed to my learning	--	3.3
Anatomy Labs helped me learn the material.	3.5	3.7
Overall, I've learned useful knowledge and/or skills	4.4	4.3
N	42	83
Class size at date	57	83
Response Rate	74%	100%

*Identify major successes in the course and problems to be overcome.*

**Successes:**

- This unit is well received by students and consistent over time.
- USMLE Step 1 scores for class of 2013 were above the national average.

- High level of integration with Medical Skills course reinforces clinical relevance of basic science content.

Challenges:

- The cardiopulmonary unit is a long unit and students feel that the amount of material covered on the final examination is challenging. Response: We will discuss unit length with the unit and course committee to consider either dividing the unit as was done last year for GI-Hematology or consider giving a mid-unit and final examination to decompress assessment.
- Student opinion is divided about the sequencing of clinical presentations. Some students recommend shifting the first clinical presentation on chest discomfort to the end of the unit to allow for coverage of both cardiovascular and pulmonary causes. Response: The unit directors feel that there is some merit in this recommendation and will address this with the unit committee and course committee.
- There were a number of free text student comments about the length and complexity of the process work sheets in this unit. Response: The unit directors will review and edit the process worksheets.
- There has been turn-over in the physician leadership of this unit. Response: A new physician unit director is being recruited internally at PLFSOM. The basic science unit directors will provide continuity for the unit.

## **1. ANATOMY**

### **Cardiovascular**

- Thoracic wall
- Mediastinum
- Heart & pericardium
- Blood and lymph, vessels, nerves
- Radiological anatomy
- Lymphatic system
- Blood vessels and lymphatic vessels
- Heart
- Heart Valves

### **Pulmonary**

- Nose, nasal cavity, paranasal sinuses, and mouth
- Pharynx, larynx, trachea and bronchi
- Thoracic wall, pleurae, and lungs
- Thoracic diaphragm
- Pulmonary blood vessels

## **2. BIOCHEMISTRY**

### **Cardiovascular**

- General objectives in cardiovascular biochemistry
- Generation and use of energy by the heart
- Cholesterol metabolism and blood lipoproteins
- Mechanisms of cell injury and cell death
- Origin of cardiac enzymes
- Glycolysis in muscle and liver
- Protein metabolism
- Troponin

### **Pulmonary**

- Biochemistry of oxygen transport
- Acquired methemoglobinemias



- Hemolysis and heme oxidation

### **3. EMBRYOLOGY**

#### **Cardiovascular**

- Congenital malformations of the heart and great vessels
- Development of the heart, great vessels, and primitive circulation
- Angiogenesis
- Development of the heart and great vessels

#### **Pulmonary**

- Embryological development of the respiratory system
- Cardiopulmonary alterations at birth

### **4. GENETICS**

#### **Cardiovascular**

- Familial hypercholesterolemia
- Familial dysbetalipoproteinemia
- Marfan syndrome
- Familial hypercholesterolemia
- Long QT syndrome

#### **Pulmonary**

- Cystic fibrosis
- Alpha 1-antitrypsin deficiency

### **5. HISTOLOGY**

#### **Cardiovascular**

- Tissue comprising the vascular system
- Characteristics of heart tissue
- Cell –cell communication in the heart
- Characteristics of cardiomyocytes

#### **Pulmonary**

- Histology of the pleura, conducting airways, and functional respiratory units
- Characteristics of tissue involved in gas exchange

### **6. IMMUNOLOGY**

#### **Cardiovascular**

- Rheumatic heart disease

### **Pulmonary**

- Asthma to Type I Hypersensitivity
- Cytokines and chemokines involved in airway inflammation
- Chronic allergen exposure

## **7. MICROBIOLOGY**

### **Cardiovascular**

- Intravascular infections
- Bacteria associated with septic shock
- Septicemia and bacteremia
- Endocarditis and pericarditis
- Viruses associated with myocarditis
- Rheumatic fever

### **Pulmonary**

- Bacteria-associated lung infections
- Viruses causing infections of the respiratory system
- Fungal infections of the lung
- Basic immune mechanisms
- Role of immune mechanisms in respiratory disease

## **8. NEUROANATOMY**

### **Cardiovascular**

- Areas of brain involved in cardiovascular regulation
- Sympathetic and parasympathetic control of cardiovascular system

### **Pulmonary**

- Areas of brain involved in regulation of breathing
- Nerves involved in transmission of afferent and efferent respiration control
- Location and identification of sensory respiratory signals

## **9. NEUROSCIENCE**

### **Cardiovascular**

- Pacemaker cell
- SA and AV node activity
- Conduction in heart muscle
- EKG analysis
- Fibrillation
- Heart Blocks

Academic Year: 2011-12

- Neural and humeral influences

### **Pulmonary**

- Respiratory rhythm generator
- Neural control mechanism

## **10. PATHOLOGY**

### **Cardiovascular**

- Pathophysiology of shock and heart failure
- Atherosclerosis
- Ischemic heart disease
- Hypertensive cardiovascular disease
- Cor-pulmonale
- Valvular heart disease
- Myocardial diseases
- Cardiac therapeutic interventions
- Pericardial diseases
- Cardiac neoplasia
- Aneurysms and dissection
- Vasculitis
- Diseases of veins and lymphatics
- Vascular tumors

### **Pulmonary**

- Normal lung vs. lung with congenital anomalies/disorders
- Atelectasis
- Acute lung injury
- Obstructive airway disease
- Interstitial (restrictive) lung disease
- Diseases of vascular origin
- Pulmonary infections
- Lung transplantation
- Tumors of the lung
- Pleura
- Ear, nose, and air sinuses
- Larynx

## **11. PHARMACOLOGY**

### **Cardiovascular**

- Overview of receptors involved in autonomic pharmacology
- Cholinergic receptor stimulants
- Cholinergic receptor and ganglionic antagonists
- Adrenergic receptor agonists
- Adrenergic receptor antagonists
- Nitric oxide
- Antihypertensive agents
- Drugs used for treatment of myocardial ischemia
- Pharmacological treatment of heart failure
- Phosphodiesterase inhibitors
- Antiarrhythmic drugs
- Agents used in hyperlipidemia
- Diuretics
- Therapy of cardiovascular disease

### **Pulmonary**

- Interpreting dose-response curves
- Overview of receptors involved in autonomic pharmacology
- Cholinergic receptor stimulants
- Autonomic pharmacology
  - cholinergic receptor and ganglionic antagonists
  - adrenergic receptor agonists
  - adrenergic receptor antagonists
- Nitric oxide and vascular reactivity
- Inhalational anesthetic agents, therapeutic gases and toxic vapors
- Pharmacological therapy of pulmonary disorders
- Antimycobacterial drugs
- Antibacterial drugs used in the treatment of pneumonia
- Histamine and antihistamines
- Kinins and their receptor antagonists
- Adrenocortical steroids and other anti-inflammatory agents
- Cancer chemotherapy

## **12. PHYSIOLOGY**

### **Cardiovascular**

- Cardiovascular circuitry & hemodynamics
- The peripheral circulatory system
- The microcirculation and lymphatics
- Cardiac electrophysiology and the electrocardiogram
- The cardiac pump
- Regulation of arterial pressure and cardiac output
- Cellular physiology of cardiac and smooth muscle
- Special circulations
- Integrated control of the cardiovascular system

### **Pulmonary**

- Respiratory system structure and function
- Respiratory mechanics
- Gas transport and tissue gas exchange
- Acid-base balance
- Pulmonary gas exchange
- Perfusion of the lung
- Ventilation / perfusion
- Control of breathing
- Respiratory physiology in different environments
- Monitoring respiratory function

PART B. REQUIRED COURSE FORM	
Course title:	Scientific Principles of Medicine Unit 6: Integration of Systems
Sponsoring department or unit:	Department of Medical Education and Department of Emergency Medicine
Name of course directors:	Elmus G. Beale, PhD, Robert Stump, MD, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course, and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Department of Emergency Medicine	9
Department of Medical Education	3

### Course Objectives

*Are there written objectives for the course? (check)*

Yes	X	No	
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*Briefly summarize the objectives/content areas covered in the course.*

Integration of Systems is a 2 week “review” unit addressing material covered in the Scientific Principles of Medicine course over the course of the year. This review is conducted in the context of emergency medicine and serves as an introduction to that field.

The eight one hour lecture sessions associated with this integrative unit include the following:

- 1- Introduction to Emergency Medicine
- 2- Pharmacology and Emergency Medicine
- 3-Cardiac Anatomy and Myocardial Infarction
- 4-Cardiac Dysrhythmias
- 5- Pulmonary Problems
- 6-Neurology and Emergency Medicine
- 7-Infections and Emergency Medicine
- 8-Antibiotics and Emergency Medicine

In addition to the lectures listed above, students participate in a series of clinical simulation exercises supervised by faculty and residents in emergency medicine—“Coding of the Rich and Famous—utilizing the high fidelity simulator resources of the PLFSOM center for Advanced Teaching and Assessment in

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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Clinical Simulation. Assessment is based on a rubric addressing general principles of emergency medicine, application of basic science principles in discussion of simulation experience, and teamwork.

**General objectives:**

- Apply the general principles of the management of the emergent medical or trauma patient, including the ABCs, airway management, and defibrillation.
- Apply knowledge of the characteristics of the autonomic nervous system and the neurotransmitters involved to the pharmacological agents used in Emergency Medicine.
- Analyze the EKG in terms of heart anatomy and physiology to diagnose pathologies, if present.
- Apply knowledge of lung anatomy and physiology to the treatment of asthma and pneumonia.
- Apply knowledge of the classes of common antibiotics to the appropriate diagnosis and treatment of infections.

Specific learning objectives have been developed for each of the instructional sessions included in this unit.

The final integrative component of this unit is “Tank-Side Grand Rounds.” Over the course of the year students electronically record findings on their cadavers as SOAP notes utilizing an on-line Donor Electronic Medical Record. These “findings” served as triggers for the development of learning prescriptions and self-directed study. During this unit each dissection team is given 30 minutes to report on their major findings and to answer questions posed by faculty and fellow students. Each member of the team participates in the presentation and are assessed by a rubric to provide feedback on behaviors associated with attitudes, knowledge, presentation skills, and analytic thinking.

**Preparation for Teaching**

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents	X	
Graduate Students		X
Postdoctoral Fellows		X

*If yes, describe how they are informed about the course objectives and prepared for their teaching role?*

Senior residents, under faculty supervision, participate in the “Coding of the Rich and Famous” simulation exercises. To prepare them for their role, the emergency physician unit director reviewed the case scenarios, session goals and objectives, and discussed the assessment rubric designed to evaluate student performance.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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*If the entire course is taught at more than one site (e.g., at geographically separate campuses), describe how instructional staff at all sites are oriented to the objectives and grading system.*

This course is taught at one site—the Paul L. Foster School of Medicine.

**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last two classes:*

Year:	NA	NA	NA
Score:	NA	NA	NA

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

X	Multiple-choice, true/false, matching questions		Laboratory practical items
	Fill-in, short answer questions		Problem-solving written exercises
	Essay questions or papers	X	Presentations
	Oral exams		Preceptor ratings
	OSCE or standardized patient exam	X	Other (describe) Simulation performance assessment rubric/Rubric based assessment of Donor Medical Record

*Briefly describe any formative assessment activities that occur during the course (practice exams, quizzes, etc.) including when during the course they occur.*

A formative DEMR evaluation is given to students at the beginning of Unit 5 in February so that students can better understand what is expected as they begin their final preparations for Tank-side Grand Rounds in Unit 6. In addition, a formative Tank-side Grand rounds evaluation is offered at the beginning of Unit 6 to provide feedback to improve presentations prior to the final presentation. About 1/3<sup>rd</sup> of the teams take advantage of this opportunity.



**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

Yes	X	No	
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Students receive narrative feedback on the rubrics employed to assess their performance in the “Coding of the Rich and Famous” exercises, their DEMR entries, and their presentations for “Tanks-side Grand Rounds.”

**Course Outcomes/Evaluation**

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*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

We have sufficient faculty and resources to teach this course. This course is taught primarily by faculty and residents from the Department of Emergency Medicine. These faculty members were able to supervise the students in “Coding the Rich and Famous” in shifts with no difficulty. The Paul L. Foster School of Medicine has a state-of-the-art high fidelity simulation center equipped with programmable mannequins that respond in real time in physiologically appropriate ways.

*Provide a summary of student feedback on the course (and any other available evaluation data). If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line end of unit evaluations employing a 5 point scale with 1 representing dissatisfaction/disagreement and 5 representing high satisfaction/high agreement. Please see results below.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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<i>Unit 6: Integration of Systems</i>	<i>2010-2011</i>	<i>2011-2012</i>
This unit was well organized.	4.1	4.4
The learning objectives were clearly identified.	3.8	4.3
The course met the identified learning objectives.	3.9	4.4
The order of clinical presentations made sense to me.	4.0	4.2
The basic science material was well integrated.	4.2	4.4
I knew what I was supposed to be learning and why.	3.7	4.3
The amount of material presented was reasonable.	3.3	4.4
The methods used to evaluate my performance provided fair measures of my effort and learning.	3.5	4.3
The lectures helped me integrate information from prior units.	4.1	4.4
The Clinical presentation "schemes" helped me learn the material.	3.9	3.9
Prior process work sheets were useful in this unit.	4.2	3.7
The self-taught modules helped me integrate information from prior units.	Not asked	3.8
Tank-side rounds helped me integrate information from prior units.	3.6	3.9
The DEMR caused me to identify gaps in my knowledge relevant to my donor's condition.	3.6	3.8
The DEMR prompted me to research topics relevant to my donor's condition.	3.9	3.9
Simulation Lab helped me integrate information from prior units.	4.2	4.2
Overall I learned useful knowledge and/or skills during this unit.	4.2	4.5
N	54	72
Class size at date	57	83
Response Rate	96%	87%

*Identify major successes in the course to date and problems to be overcome.*

**Success:**

- Students report a high level of satisfaction with this unit and enjoy participating in the simulation exercise "coding the rich and famous."
- Development of integrated lecture series reviewing host-defense processes, the musculoskeletal and neurological systems, GI-Hematology systems, and cardio-pulmonary systems.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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- Development of simulation protocols to expose students to emergency situations related to the above organ systems.
- Tank-Side Grand Rounds provides students an excellent opportunity to share results of self-directed study based on anomalies observed in their cadavers.

**Problems/Challenges:**

- Some faculty members found the evaluation rubrics for assessing the Tank-side Grand Rounds Presentations and for the Coding of the Rich and Famous exercise complex. We will review and revise as necessary.
- Students report that the amount of effort needed for the preparation of the Tank-side Grand Rounds presentation was disproportionate to the 5% weighting for the final Unit 6 grade. We are discussing increasing this weighting.
- New “Coding of the Rich and Famous” scenarios need to be developed as the content of some of the existing scenarios has been revealed.
- A number of faculty members feel that the Tank-side Grand Rounds exercise should be done in year 2 after students have completed their study of all organ systems. This recommendation is under consideration by the SPM course committee. A recommendation will be forwarded to the CEPC in the fall of 2012.

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Masters' Colloquium (I, II, III, IV)
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Stephan Sandroni, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	5

**COURSE OBJECTIVES**

*Are there written objectives for the course?*

<b>Yes</b>	<b>X</b>	<b>No</b>	
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*Briefly summarize the objectives/content areas covered in the course.*

This is a required course for first and second year students that meet weekly in two hour sessions. Students are divided into 4 equal-sized learning communities, "Colleges," and instruction takes place within each college under the direction of a College Master. The topics addressed in this course relate to the following broad themes: the role of the physician, student acculturation into this role, professionalism, ethics, humanities, history of medicine, critical thinking, problem solving, judgment, communication skills, life-long learning, health care system issues, and controversies in medicine.

Most of the time the topics for the Masters Colloquium are coordinated with the content covered in Scientific Principles of Medicine. The principle instructional method is facilitated group discussion although a variety of instructional modalities are also used including presentation of artistic compositions, review of film and video, reflective writing, critical analysis of readings, and workshop style break-out activities. A list of the topics addressed in the Masters Colloquium in 2011-12 is included in the appendix at the end of this course description.

Course learning objectives, and how they relate to the PLFSOM Institutional Learning Objectives described in Section II (Educational Program) ED-1, 1-A (by alpha-numeric code) are listed below:

**KNOWLEDGE**

- Describe fundamental ethical principles and human values, and how these apply in patient care and medical practice (Prof-1)
- Describe the components of the national health system and its funding and how this system affects individual and community health (SPB-2)

- Discuss financial, political and cultural situations that may present conflicts of interest in the practice of medicine (Prof-2)

### **BEHAVIORS**

- Display compassion in interactions with all patients regardless of race, gender, ethnicity, sexual orientation, socioeconomic status and disability (Prof-3)
- Communicate clearly and in a civil manner with colleagues and instructors in the medical learning environment (ICS-1)
- Employ the highest ethical principles in interpersonal relationships, patient care, and research (Prof-4)
- Identify the need to employ self-initiated learning strategies (problem definition, resource identification, critical appraisal) when approaching new challenges, problems, or unfamiliar situations (PBL-7)

### **ATTITUDES**

- Demonstrate respect for the beliefs, opinions and privacy of peers, colleagues, and instructors in the medical learning environment (Prof-5)
- Hold respect for the values of open-mindedness, awareness of the values of others, and mindfulness of one upon values.
- Provide compassionate and culturally appropriate care in all stages of the life cycle (ICS-1, Prof-3)
- Recognize when to take responsibility and when to seek assistance based on one's position, training and experience (PBL-4)
- Preserve patient's dignity in all interactions (Prof-8)
- Advocate for the interests and needs of the patient over one's own immediate needs (Prof-9)

### **SKILLS**

- Identify and critically appraise electronic resources (appropriate to problem under study) for one's own education, patient education, and direct patient care (PBL-5)
- Given an ethics case, be able to identify the key ethical dilemma, identify the ethical principles that are in conflict, formulate arguments both for and against each option, weigh these arguments, and select the best course of action.
- Communicate knowledge, interpretation and recommendations orally and/or in writing to a wide range of professional or lay audience in culturally appropriate ways (ICS-3)
- Use a variety of educational modalities in pursuit of life-long learning (PBL-3, 7)

### **Preparation for Teaching**

All teaching is done by the college Masters who meet weekly to plan their sessions, to identify topics and resources, and to make decisions about approach. The college Masters are committed to ensuring that students address comparable issues and employ equivalent methods for assessing student performance (e.g., use of common rubrics for the evaluation of written assignments).

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	<b>Yes</b>	<b>No</b>
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Residents		X
Graduate Students		X
Postdoctoral Fellows		X

*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

Not applicable.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This course is taught on the campus of the Paul L. Foster School of Medicine in two sections each corresponding to the learning communities (Colleges) that have been established in the school. As described above, the Masters Colloquium is delivered by the college Masters for their respective Colleges. The Colloquium has a single syllabus and the Masters meet weekly to coordinate their teaching. The learning goals and topics addressed are the same for each College, but flexibility is permitted in the manner in which specific objectives are achieved.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Masters' Colloquium I, II, III, IV
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input checked="" type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input type="checkbox"/>	Other (describe)

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

College Masters meet individually with students in their respective colleges about their performance in the Masters' Colloquium and they also address issues related to student performance in other components of the curriculum. During the first two years of medical school, the college Masters serve as the primary advisors and mentors to students at the PLFSOM.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative feedback is provided on required written reflective exercises and analytic papers. The college Masters also collaborate with the associate dean for student affairs and the senior associate dean for medical education in the drafting of summary narratives based on small group facilitator feedback forms. These summaries are uploaded in the student portfolio.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

With the expansion in class size from 40 students in our charter class (Class of 2013) to the current 80 students, we are increasing the number of colleges—from two-to-four, and increasing the number of Masters from 4-to-8. Three new Masters were selected in the 2011-12 academic year and we are actively recruiting for the final Master as of this writing [May 12, 2012]. This number is adequate to meet the teaching needs of the Colloquium and the mentoring needs of the college. Each college has its own

“commons space” adjacent to the Masters’ offices. The Colloquium takes place in two “case study” rooms designed on the Harvard Business School model or in one of two flexible use large seminar rooms. Each setting is appropriate for this discussion-intensive course. IT and audiovisual resources are readily available. The Colloquium has a course coordinator who is assigned to this course full time.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete on-line anonymous course evaluations at the end of each semester for this course. A five point scale is employed with 1 indicating the respondent “strongly disagrees” and 5 indicating the respondent “strongly agrees” with the item in question. The results of these evaluations for the past two academic years are listed below:

MC I	Class of 2014	Class of 2015
Masters Colloquium was well organized.	3.5	4.0
The learning objectives were clearly identified.	3.2	3.4
The course met the identified learning objectives.	3.3	3.7
The amount of material presented was reasonable.	3.8	4.2
I knew what I was supposed to be learning and why.	3.3	3.7
The methods used to evaluate my performance were fair	3.5	3.6
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	4.0	3.9
The course format is appropriate.	3.7	3.8
Master's Colloquium broadens my perspectives	3.8	3.8
Master's Colloquium challenges my assumptions.	3.3	3.7
Master's Colloquium helps me understand what is expected of me as a doctor.	3.9	3.8
Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	3.6	3.8
I feel the Masters Colloquium has been valuable to me	3.4	3.7
Number of Responses	52	78
Class Size	57	83
Response Rate	91%	94%

MC II	Class of 2014	Class of 2015
Masters Colloquium was well organized.	3.9	3.9
The learning objectives were clearly identified.	4.0	3.8
The course met the identified learning objectives.	3.9	3.8
The amount of material presented was reasonable.	4.3	4.1
I knew what I was supposed to be learning and why.	4.0	3.8
The methods used to evaluate my performance were fair	4.0	3.9
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	4.3	4.0
The course format is appropriate.	3.9	3.9



Master's Colloquium broadens my perspectives	4.1	4.0
Master's Colloquium challenges my assumptions.	3.7	3.9
Master's Colloquium helps me understand what is expected of me as a doctor.	4.0	3.9
Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	4.0	4.0
I feel the Masters Colloquium has been valuable to me	3.9	3.9
Number of Responses	42	70
Class Size	57	83
Response Rate	74%	84%

MC III	Class of 2014	Class of 2015
Masters Colloquium was well organized.	3.9	4.0
The learning objectives were clearly identified.	3.8	4.0
The course met the identified learning objectives.	3.7	3.9
The amount of material presented was reasonable.	4.1	3.9
I knew what I was supposed to be learning and why.	3.7	3.9
The methods used to evaluate my performance were fair	3.7	3.9
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	4.1	3.9
The course format is appropriate.	3.9	3.9
Master's Colloquium broadens my perspectives	3.9	3.9
Master's Colloquium challenges my assumptions.	3.8	3.9
Master's Colloquium helps me understand what is expected of me as a doctor.	3.7	3.9
Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	3.7	3.8
I feel the Masters Colloquium has been valuable to me	3.7	3.8
Number of Responses	27	56
Class Size	37	57
Response Rate	73%	98%

MC IV	Class of 2013	Class of 2014
Masters Colloquium was well organized.	4.1	4.1
The learning objectives were clearly identified.	3.9	4.1
The course met the identified learning objectives.	3.9	4.1
The amount of material presented was reasonable.	4.4	4.1
I knew what I was supposed to be learning and why.	3.9	4.0
The methods used to evaluate my performance were fair	4.1	4.0
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	3.8	4.1
The course format is appropriate.	4.1	4.1
Master's Colloquium broadens my perspectives	4.1	4.1
Master's Colloquium challenges my assumptions.	4.2	4.0
Master's Colloquium helps me understand what is expected of me as a doctor.	3.9	4.1

Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	4.1	4.1
I feel the Masters Colloquium has been valuable to me	4.1	4.0
Number of Responses	18	55
Class Size	37	57
Response Rate	49%	96%

*Identify major successes in the course and problems to be overcome.*

**Successes:**

**Engagement:** In Spite of the fact that the topics are broad, discussions focus on controversy and ambiguity, and the instructional method relies heavily on student participation, the Masters Colloquium is well attended and the sessions are eagerly engaged by the students.

**Bioethics:** by the end of the second year, the majority of students are able to take an ethics case, identify the key issue, articulate the ethical principles at work in the case, formulate arguments, and weigh the arguments against each other.

**Civil discourse:** an additional success is the respect for open discussion held by all the students. The Colloquium is a forum for open discussion of difficult issues. Some of the topics touch on polarizing issues. Students are encouraged to state their positions while treating others who hold different positions with respect.

**Reflection:** An additional success of the Colloquium is the openness that students demonstrate in their affective writings. The assignments ask the students to self-disclose their past decisions, feelings, and shortcomings. The students have written these essays with remarkable honesty, but many have described a sense of personal growth from these exercises.

**Challenges:**

**Curriculum:** Large group discussion is an inherently unwieldy instructional method, and the Masters Colloquium sessions have been somewhat uneven in quality. Some sessions has stimulated energetic participation by the students, while others fell flat. The College Masters continue to learn how to craft discussion cases and questions that contain the optimal level of ambiguity, challenge, relevance, novelty, and urgency. The weekly session planning meetings of the College Masters has become an important forum for development of these skills.

**Professionalism:** The assessment of professionalism has long been a challenge for medical educators. The current climate in medical education, driven principally by the ACGME, is strongly focused on developing new measures of professional behavior, and using these to assess trainees. The College Masters are responding to this challenge by initiating a collaborative effort to define the domains of professional behavior relevant to pre-clerkship trainees (and subsequently students in the clerkships), and subsequently write developmental descriptors of professional behavior. Once a derivation set of descriptors has been written, the College Masters hoped to prospectively validate these descriptors.

**Students in the clinical years:** Students in the pre-clerkship years have a strong sense of affiliation with their college and College Masters. However, once they leave the medical school and begin working in the

medical center, this affiliation is quickly lost. However, students in their clerkships are experiencing challenges in many domains, including difficult patient decisions, complex family dynamics, working with fatigued residents and attending physicians, ethical dilemmas, socioeconomic constraints, ethnic disparities, unfamiliar cultural norms, and other tough issues. These students would clearly benefit from a discussion forum such as the Masters Colloquium, but there simply is no place in the clerkships scheduled to situate such a forum. In addition, intersessions are not held between the clerkships, so there is no opportunity to bring all of the third-year students together from their various clerkship posts. Extending the work of the colleges into the clerkship year is a particularly important and difficult problem.

## **Appendix: Masters Colloquium Topics**

### **Year 1 (MC I, II)**

1. Creative composition: the anatomic donor
2. The antibiotic problem: Introduction to ethics
3. Learning principles
4. Narrative in medicine: Common text exercise
5. Economics of health care: Introduction to Medicare, Medicaid
6. The patient's experience of chronic disease
7. Decision-making heuristics
8. Ethics of pain management
9. Honesty and confidentiality
10. Doctors facing their fears
11. Empathy (parts 1,2, 3)
12. Diagnostic imaging: Two edged sword
13. The big picture: Ethical issues in genetic screening of populations
14. The risk-benefit ration of cancer therapy
15. Empathy and ethics
16. The ethics of life sustaining interventions
17. Imelda (film)
18. Reflections on a picture
19. Research Ethics (parts 1 and 2)
20. Ethics of genetic screening of individuals

### **Year 2 (MC III, IV)**

1. Review of summer/SARP projects
2. Health care costs and sustainability
3. Awareness of disability: blindness and deafness
4. How doctor's face their fears
5. Professionalism
6. Drug companies and health care
7. Dialysis and transplantation: Access to care
8. Global health issues
9. Systemic barriers to effective therapy
10. Cultural interaction
11. Professionalism: Getting along in the sand box
12. Implications of assisted reproduction
13. Gender issues in medicine
14. Physician errors
15. Patient autonomy and decision-making
16. Career-life balance
17. Pediatric ethical decision-making
18. The chronically ill child: Doctor's sway and optimism
19. Real-time literature searching
20. Orientation to third year: Panel discussion

## Academic Year 2011-12

Please note: Medical Skills (I, II, II and IV); Society, Community and the Individual (I, II, II, IV), and the Masters Colloquium (I, II, II, and IV) are courses that span the entire first two years of the curriculum. They are organized as continua as illustrated in Section II ED-5 and as described in the “overview” to the curriculum introducing the Educational Program component of the database. To reduce redundancy, we prepared a single description for these three years 1 and 2 courses. These descriptions are contained in the folder labeled “M1 and 2 Continua Courses.”

**PART B. REQUIRED COURSE FORM**

<b>Course title:</b>	Medical Skills I, II, III, and IV
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	Gordon L. Woods, MD, MHPE Maureen Francis, MD, FACP

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Emergency Medicine	4
Family Medicine	9
Internal Medicine	17
Medical Education	8
Neurology	2
Obstetrics/Gynecology	6
Orthopedics	2
Pathology	2
Pediatrics	5
Psychiatry	4
Radiology	2
Surgery (Ophthalmology)	2

**COURSE OBJECTIVES**

Please note: This course is a required two year course and operates purposefully as a continuum over the first two years of the curriculum.

*Are there written objectives for the course?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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*Briefly summarize the objectives/content areas covered in the course.*

Upon completion of the course, students will be able to:	Content area
Communicate with patients, family members, staff, and peers in a respectful and diplomatic manner. (ICS-1, 3, Prof-2)*	Communication skills
Communicate using language that is clear, understandable, and appropriate to each patient. (ICS-1,3, Prof-5,7)	Communication skills
Maintain each patient's dignity and modesty during clinical encounters.	Professionalism

(Prof-8)

Identify the chief reason for the clinical encounter and use questions effectively to find the most pertinent history needed for decision-making. Clinical skills

(PC-6)

Select and perform the most pertinent physical examination maneuvers to search for findings that support or refute likely diagnoses under consideration. Clinical skills

(PC-4,6)

Concisely, accurately, and legibly record the patient's history in the medical record. (ICS-2, PC-3) Documentation skills

Use the patient's history, physical examination, and diagnostic studies to generate a list of active medical problems. (PC-6) Patient care

Orally present a patient's history and physical examination in an organized and concise manner. (ICS-1) Communication skills

List the appropriate indications, potential risks and intended benefits of common procedures such as venipuncture, placement an intravenous catheter, and lumbar puncture.(MK-3) Clinical decision-making

Proficiently perform several common clinical procedures such as venipuncture, placement of an intravenous catheter, and lumbar puncture. (PC-4) Procedural skills

\*Note: Alpha-numeric codes correspond with institutional learning objectives documented in database section II, ED-1A.

The Medical Skills course is tightly integrated with the organ system units and clinical presentations in the course Scientific Principles of Medicine (SPM). During each Medical Skills session, students interview and examine a standardized patient presenting with a problem from the clinical presentation being covered that week in SPM. Students use focused histories and physical examinations modeled after the practices of expert clinicians to identify the underlying pathologic process and reason their way to the most likely diagnosis. During this process, students apply concepts learned in SPM to relevant clinical cases, and extend their knowledge of basic science by applying what they have learned to clinical decision-making.

**Preparation for Teaching**

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	Yes	No
Residents	√	
Graduate Students		√

Postdoctoral Fellows		√
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*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

The Medical Skills Course enlists clinicians from twelve clinical departments including clinician educators from the Department of Medical Education and chief residents from the residency training programs. These individuals are prepared for their teaching sessions through the following process:

- Instructional plans and course materials are prepared prior to each session. These are sent to participating clinician instructors in advance of their session. These instructional materials include learning objectives for the session.
- In preparation for their teaching, participating clinician instructors are invited to observe medical skills sessions and discuss the instructional plan with the course directors.
- Prior to their sessions, the course directors meet with participating clinician instructors for an optional instructors briefing on the teaching plan and review of the course materials. These briefings typically include a verbal "walk-through" of the session, during which comments, improvements, and suggestions are provided.
- Periodically, course directors will personally observe the instruction of clinician educators during the session. During breaks between sessions, the course directors will offer observations, suggestions, and feedback on the clinician educators' instruction.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

The Medical Skills course is taught on campus at the Paul L. Foster School of Medicine in the Western Refining Company Advanced Teaching and Assessment in Clinical Skills center.



**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Medical Skills I and II
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not Applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

√	Multiple-choice, true/false, matching questions		Laboratory practical items
	Fill-in, short answer questions		Problem-solving written exercises
√	Essay questions or papers		Presentations
	Oral exams		Preceptor ratings
√	OSCE or standardized patient examination	√	Other (describe) Standardized patient assessments

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

**Introduction:** At the beginning of each Medical Skills session, a short introductory briefing is held. During this briefing, students take a readiness-assurance quiz using the audience response system (ARS). This quiz is designed to assess each student's readiness to engage in the learning activity. Multiple-choice questions taken from the preparatory materials for the session are presented, and the responses to these questions are used to fill in critical knowledge caps prior to starting the learning activities.

**Standardized Patient Encounters:** Students regularly participate in Standardized Patient (SP) encounters throughout the course. The problems scripted into these SP exercises are aligned with the course content of the SPM course. Each student is rated by their SP using a checklist of performance criteria. After each SP encounter, students personally meet with the SP for one-on-one feedback on their verbal communication, demeanor, and nonverbal communication.

After the SP encounter, each medical student writes a progress note in the SOAP format. These progress notes are immediately printed and given back to the medical student as a hard copy. Students then meet as a group with a faculty member to write a group SOAP note. With one student typing on a computer that is displayed on a projection screen, the students craft a consensus SOAP note. The faculty member facilitates the students as they select the elements they would include in the Subjective and Objective sections. Then, the faculty member guides the students as they come to their Assessment and craft a Plan. During this process, each student compares their own progress note to the consensus note written by their classmates. The reason for including each element of history and physical exam is reviewed, and the steps in arriving at the correct diagnosis are discussed. As a student driven activity, this exercise has proven to be a powerful learning and motivating experience for the students. Most notably, students early in their education can participate in discussions at a fairly high-level of diagnostic sophistication.

**Clinical skill development sessions:** in addition to a standardized patient encounter, each week medical students also participate in a skill development activity. These activities might include performance of a procedure (such as phlebotomy, lumbar puncture, arthrocentesis), physical examination skills (the fine points of the abdominal exam, cardiac auscultation, examination of the cranial nerves) or basic study interpretation (chest x-ray, electrocardiogram, laboratory test results). Skill development sessions are typically taught in small groups (4-5 students) and are interactive. After an initial demonstration of the skill, students perform the procedure while the faculty member provides coaching, suggestions, and feedback on performance.

**Hospital patient visits and written H&P (second year only):** On two occasions, students accompany one of the course directors to University Medical Center for a Hospital patient interview. With consent, students interview and examine a hospitalized patient, using a data gathering form to guide their questioning and physical exam. Students write up the information gathered in the standard admission history and physical format and submit these to a course director. They subsequently receive back their history and physical with handwritten comments, suggestions, and feedback.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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In addition to check sheet ratings, standardized patients provide written narrative comments on each student's performance during each learning sessions, and also for after each OSCE testing station.

#### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

The Medical Skills Course is presented in the Clinical Simulation Center, a state-of-the-art instructional facility located within the Paul L. Foster School of Medicine. Resources available within the Clinical Simulation Center include:

- a teaching classroom with multimedia, smart board, and audience response system
- small conference / discussion rooms
- 10 fully furnished and equipped examination rooms with videotaping and audio taping
- a real-time video processing system for recording multiple SP encounters
- a web-based SP encounter database system for student evaluation
- a simulation laboratory with six Human Patient Simulators that can simulate a wide range of medical, emergency medicine, surgical, pediatric, and obstetric clinical scenarios
- two practice rooms equipped with a wide variety of partial task simulators
- A computerized haptic simulator using force feedback simulation for computerized procedural practice
- A flexible case discussion room equipped with exam table, smart board, flat screen video, multimedia computer, and movable seating for up to 20 students.

Academic Year: 2011-12

The two course directors, who are the principal course instructors, have together over 35 years of experience as full-time medical educators, including experience in the development of educational instructional materials, development of standardized patient scenarios, bedside clinical teaching, performance assessment, and course evaluation.

The members of the Simulation Center support staff have extensive experience in organizing and presenting a wide variety of instructional sessions and student examinations. They support curriculum administration, training and maintaining a panel of standardized patients, and website management.

The Medical Skills Course is perhaps the most teacher-intensive course in the entire curriculum. The course frequently utilizes clinician-educators from the Department of Medical Education; a small group of well experienced clinical instructors. In addition, physicians from University Medical Center who have clinical appointments to Texas Tech University regularly participate in teaching in the course. Physicians are selected for each session based on their clinical experience and credentials as well as their demonstrated skill in providing small group instruction.

***Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.***

Students complete an on-line anonymous evaluation of this course at the end of each semester. The survey employs a 5 point scale with 1 indicating a low level of satisfaction and 5 corresponding with a high level of satisfaction. Course evaluations are conducted by the Office of Curriculum, Evaluation and Accreditation.

MEDICAL SKILLS Semester I	Class of 2014	Class of 2015
This unit was well organized.	4.3	4.3
The learning objectives were clearly identified.	4.3	4.2
The course met the identified learning objectives.	4.4	4.3
I knew what I was supposed to be learning and why.	4.3	4.0
The amount of material presented was reasonable.	4.5	4.4
The materials posted on WebCT adequately prepared me for the learning sessions.	4.4	4.1
The methods used to evaluate my performance during this unit provided fair measures of my effort and learning.	4.2	4.1
The material covered is relevant to the practice of medicine.	4.6	4.6
The preparation materials helped me learn the material.	4.4	4.3
The Standardized Patient Encounters helped me learn the material.	4.6	4.4
The group skill building activities helped me learn the material.	4.0	4.1
The feedback I received helped me learn the material.	3.7	4.1
This course encourages me.	4.2	4.3
Overall, I learned useful knowledge and/or skills during this unit of Medical Skills.	4.6	4.6
N completing Survey	56	80
Class size	62	85
Response rate	90.3%	94.1%

MEDICAL SKILLS Semester II	Class of 2014	Class of 2015
This unit was well organized.	4.5	4.3
The learning objectives were clearly identified	4.5	4.3
The course met the identified learning objectives.	4.5	4.3
I knew what I was supposed to be learning and why.	4.4	4.3
The amount of material presented was reasonable.	4.5	4.3
The materials posted on WebCT adequately prepared me.	4.5	4.2
The methods used to evaluate my performance were fair.	4.2	4.1
The material covered is relevant to the practice of medicine.	4.6	4.6
The preparation materials helped me learn the material.	4.5	4.3
The Standardized Patient Encounters helped me learn the material.	4.5	4.3
The group skill building activities helped me learn the material.	4.3	4.3
The feedback I received helped me learn the material.	3.9	4.0
This course encourages me.	4.3	4.3
Overall, I learned useful knowledge and/or skills	4.6	4.5
N completing Survey	41	83
Class size	57	83
*Response rate	72%	100%

\*Please note: response rate low due to technical problems with on-line student evaluation application. This problem has been corrected.

Medical Skills Semester III	Class of 2013	Class of 2014
This unit was well organized.	4.2	4.1
The learning objectives were clearly identified	4.2	4.0
The course met the identified learning objectives.	4.3	4.0
I knew what I was supposed to be learning and why.	4.2	3.9
The amount of material presented was reasonable.	4.2	4.2
The materials posted on WebCT adequately prepared me.	4.3	3.4
The methods used to evaluate my performance were fair.	4.3	3.8
The material covered is relevant to the practice of medicine.	4.5	4.5
The preparation materials helped me learn the material.	4.2	3.7
The Standardized Patient Encounters helped me learn the material.	4.5	3.9
The group skill building activities helped me learn the material.	4.2	4.1
The feedback I received helped me learn the material.	4.3	3.9
This course encourages me.	4.4	3.9
Overall, I learned useful knowledge and/or skills	4.5	4.3
N completing Survey	25	57
Class size	37	62
Response rate	67.6%	91.9%

Medical Skills IV	Class of 2013	Class of 2014
This unit was well organized.	3.6	4.2
The learning objectives were clearly identified	3.6	4.3
The course met the identified learning objectives.	3.6	4.2
I knew what I was supposed to be learning and why.	3.5	4.3
The amount of material presented was reasonable.	3.8	4.3
The materials posted on WebCT adequately prepared me.	3.6	3.9
The methods used to evaluate my performance were fair.	3.8	4.2
The material covered is relevant to the practice of medicine.	4.2	4.4
The preparation materials helped me learn the material.	3.8	4.0
The Standardized Patient Encounters helped me learn the material.	4.0	4.2
The group skill building activities helped me learn the material.	3.7	4.3
The feedback I received helped me learn the material.	3.8	4.1
This course encourages me.	3.7	4.3
Overall, I learned useful knowledge and/or skills	3.9	4.4
N completing Survey	14	55
Class size	37	57
Response rate	37.8%	96.5%

*Identify major successes in the course and problems to be overcome.*

As can be seen from the evaluation results reported above, students are highly satisfied with the Medical Skills Course. Data provided by the Office of Curriculum, Evaluation, and Accreditation reveals that Medical Skills is the highest rated course in the pre-clerkship curriculum. The consistency of these high ratings over semesters and years is also noteworthy.

Students in the charter class were dissatisfied with the level and quality of feedback they received in the Medical Skills course. This issue was reviewed in a meeting of the Curriculum and Educational Policy Committee and the recommendation was made to the course director to revise the procedures for providing feedback. Responding to this recommendation, the following changes have been implemented.

1. As students see standardized patients in pairs, the second student now functions as a peer evaluator. The peer observers are provided with a list of performance criteria that are customized to each individual clinical presentation. Immediately after the encounter, the student observer provides feedback to their peer on their performance relative to these criteria.
2. Immediately after each test can counter, the standardized patients continue to give their impressions about the students verbal and nonverbal communication skills directly to the student.
3. Students receive a copy of their individual ratings from their standardized patient immediately following each SP encounter.
4. The facilitating faculty member receives aggregate data regarding the SP checklist ratings. During the small group debriefing following the SP encounter, the group receives general feedback on their performance.

5. During the SP encounter debriefing session, students write a consensus group SOAP note (see above). During this exercise, each student has a hard copy of their own individual SOAP note for comparison with the note being written by the group. In this way, students can compare their own performance with that of the best performing students in the group.

These changes have resulted in a considerable improvement in student satisfaction with this component of the course.

### Successes:

**Integration:** A particular success of the Medical Skills Course has been the close integration of the course curriculum with topics covered in Scientific Principles of Medicine. This integration allows each medical skills session to build on basic sciences learning presented during the previous days. Through the application of basic sciences learning to clinical problems, the Medical Skills Course has enhanced the students understanding of principles learned in SPM. In this way, the two courses as have developed synergism, with each course supporting the learning goals of the other.

**Communication skills and professional deportment:** During the preclinical years, each medical student participates in 32 standardized patient encounters, and is the leading interviewer in at least half of these encounters. As a result, students have multiple observations of their bedside demeanor and communication skills, and receive feedback on their communication and professionalism after each of these encounters. As a result, by the end of the second year students have improved their bedside communication skills and professionalism. We have observed that virtually all of the students conduct themselves with patients in a considerate, articulate, and diplomatic manner.

**Clinical decision-making:** Each Medical Skills session is situated within a week of focused curriculum on a clinical topic. This has allowed the course directors have to present fairly complex clinical problems to the pre-clerkship students in the course. The course directors have seen that the students are consistently able to engage in medical decision-making at a sometimes surprisingly high level of sophistication. As a result, the Medical Skills Course has been particularly effective in preparing students for the third year clerkships.

### Challenges:

**Feedback:** Changes in the processes for providing feedback to students have improved each students understanding of their individual performance. However, a missed opportunity persists. Each student is videotaped doing their SPM counters, and one-on-one review of these videotaped encounters is a powerful means of improving performance in a number of learning domains. Unfortunately, limited faculty availability has been a barrier to developing regular, one-on-one review of these videos with students. A potential solution is developing with recruitment of an additional clinical College Master. This faculty member would serve as a third co-director of the Medical Skills Course. With this additional faculty member, course administrative work can be distributed, opening time for clinical faculty members to begin regular reviews of video tapes with students.

**Assessment of professionalism:** Long an elusive goal of medical education, individual medical students have occasionally deported themselves unprofessionally. Some of these incidents have been dealt with and in an ineffective manner because of the lack of a clear description of appropriate professional behavior. The College Masters have begun the process of developing descriptors of professional behavior, with the intention of using these in the assessment of professional behavior. These descriptors will be applicable to student conduct in the Medical Skills Course sessions and will enhance the faculties ability to identify unprofessional behavior and deal with it effectively.

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Society, Community, and the Individual I, II, III, IV
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	Theresa Byrd, Dr. PH/Tania Arana, PhD

Society, Community, and the Individual (SCI) is a two-year long course spanning the first four semesters of medical school.

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	3
Department of Biomedical Science	1
Department of Family Medicine	43*
Department of Internal Medicine	11*
Department of Pediatrics	9*
Department of Obstetrics and Gynecology	2*
Department of Psychiatry	3*

\*Please note: These numbers include volunteer community faculty members serving as preceptors in the community-clinic experience component of SCI.

### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

Society, Community, and the Individual (SCI) is a required course spanning the MS1 and MS 2 years. The overall goal of this course is to provide students with a population perspective on health, illness, and care. This perspective is conveyed by weaving the following threads throughout the course: epidemiology, biostatistics, culture, community, family, environmental and occupational health, and medical Spanish. As part of this course, students participate in community assessment projects and they are assigned to community clinics where they spend approximately one-half day per month during the school year. During their clinic placements they are given opportunities to interact with patients under the supervision of physicians who have clinical appointments in the School of Medicine and they also complete a series of exercises designed to help them understand the organization of the practice, and the roles and relationships among the various members of the health care team (e.g., nurses, medical assistance, pharmacy, social work, community outreach workers).



Academic Year \_\_\_\_\_

The overall course goals include the following (alpha-numeric code refers to Institutional Learning Objectives described in Section II, ED-1, 1-A):

1. Students will understand the ecological model of health and how political/social, community, organizational, and family systems influence individual health (PBL-2, SBP-1, SBP-2, Prof-9);
2. Students will acquire an understanding of biostatistical concepts required to critically evaluate the medical literature and practice evidence-based medicine (MK-3, MK-4);
3. Students will understand modern epidemiological principles for assessing disease processes within populations and know how to apply this knowledge in practice (MK-3, MK-4);
4. Students will appreciate the role of culturally based beliefs, attitudes, and values in affecting the health and illness behaviors of individuals, groups, and communities (ICS-1, ICS-2, ICS-3, Prof-5, Prof-7);
5. Students will understand the concept of community and of systems within communities that impact health seeking behaviors and responses to treatment interventions (SPB-1, SPB-2);
6. Students will recognize variations in family structures, organization, values, and expectations as these influence health and illness-related behaviors (ICS-1, ICS-2, ICS-3, Prof-5, Prof-7);
7. Students will recognize the impact of environmental and occupation factors on the health of individuals and populations within communities and they will be able to identify and apply effective strategies for promoting health and reducing illness at the level of the individual and the community (ICS-3, SBP-1, SPB-2).
8. Students will acquire (or expand upon existing) skills in conversational and medical Spanish (ICS-1, ICS-3).

Specific learning objectives and expectations are made available prior to, or at the time of, each individual learning activity.

### **Preparation for Teaching**

A majority of the lecture sessions in this course have been developed and delivered by faculty members who participated in the initial planning and design of the course. Consequently they are well aware of course goals and objectives and have developed their teaching materials to meet these goals and objectives. For small group sessions, facilitators are provided with detailed small group facilitator guides, lesson plans, and all needed materials. Further, faculty members facilitating small group sessions meet in “faculty huddles” prior to the scheduled session to review the goals, objectives, and methods of the session and to ask and answer questions. Community-based preceptors are provided opportunities for in-person orientation and faculty development. All are provided with detailed session guides and outlines.



Academic Year \_\_\_\_\_

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	<b>Yes</b>	<b>No</b>
Residents		X
Graduate Students		X
Postdoctoral Fellows		X

*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

Residents, Fellows, and Graduate Students do not teach in this course.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

Didactic/classroom components of this course are taught at a single location on the campus of the school of medicine. Students are, however, assigned to one of several community clinic sites for early clinical experiences located throughout the area. A variety of methods are employed to orient staff and clinical faculty to the goals and learning objectives of the course and the evaluation of the student. These include the following:

1. The creation of a community clinic advisory group with a representative from each major community-based site. This group meets two-three times a year, and as needed, to discuss the program goals and objectives, logistics, and to solve problems. These dinner meetings are well attended.
2. The course directors and coordinators hold orientation meetings with the clinical faculty and staff at each of the community clinic sites at the beginning of each academic year.
3. Each participating community clinic faculty member is provided a copy of the course syllabus and with a set of written materials outlining course objectives and learning activities.
4. Community clinic faculty do not grade the student per se, but complete a behavioral feedback form, including narrative comments, that is used by the course director to determine whether there are problems with student attitudes or conduct that need to be addressed.

Academic Year \_\_\_\_\_

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Society, Community, and the Individual
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input checked="" type="checkbox"/>	Fill-in, short answer questions	<input checked="" type="checkbox"/>	Problem-solving written exercises
<input checked="" type="checkbox"/>	Essay questions or papers	<input checked="" type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input checked="" type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator evaluations

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Practice exam questions are provided for biostatistics.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance in SCI small group sessions and they are encouraged to provide brief narrative comments. Similarly, community preceptors complete an assessment on each student at the time of each encounter. They too are encouraged to provide narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, would be referred to the associate dean for student affairs and if necessary to the Grading and Promotion committee for action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

Academic Year \_\_\_\_\_

The SCI course has excellent space, excellent IT/Educational technology support, and a full time course coordinator to assist the course director. We also have more than adequate faculty resources to meet the didactic course goals and learning objectives. Our challenge for the future will be in recruiting sufficient numbers of community clinic physicians for the experiential components of this course. We have adequate numbers now to meet our needs for the next 2 years, but as our class size grows, we'll need to expand capacity. Steps are being taken to identify additional clinical faculty in the community and additional sites to meet future needs.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students are asked to complete anonymous on-line evaluations of this course at the end of the three-week, “mini-immersion” experience on language, culture, and community on the border, which serves as the PLFSOM introduction to the education program for first year students, and then again at the end of each semester. Students are asked to respond to evaluation items using a 5-point scale with 1 indicating “strong disagreement” with the item and 5 indicating “strong agreement.” Results for the last two years are presented below.

<b>SCI Immersion Block</b>	<b>Class of 2014</b>	<b>Class of 2015</b>
The SCI Immersion was well organized	4.0	3.4
The learning objectives were clearly identified	4.0	3.5
The SCI Immersion met the identified learning objectives	4.0	3.6
The community assessment gave me a good feel for the El Paso community.	4.4	4.1
The amount of material presented was reasonable.	4.2	3.6
I improved my Spanish speaking skills	4.2	4.0
The lectures helped me learn the material.	3.8	3.5
The small group learning activities helped me learn the material.	4.1	3.7
The community assessment helped me learn the material	4.0	3.7
The interactive sessions helped me learn the material	4.2	3.7
I understand how the SCI Immersion is applicable to the practice of medicine.	4.1	4.0
Overall, I learned useful knowledge and/or skills	4.0	3.7
N completing Survey	60	82
Class size	62	84
Response rate	97%	98%

Academic Year \_\_\_\_\_

<b>SCI I (Semester)</b>	2014	2015
SCI was well organized.	3.7	3.0
The learning objectives were clearly identified.	3.8	3.5
The course met the identified learning objectives.	3.9	3.5
The amount of material presented was reasonable.	3.9	3.8
I knew what I was supposed to be learning and why.	3.9	3.0
The methods used to evaluate my performance were fair	3.9	3.2
SCI broadens my perspectives.	3.5	3.0
The material covered by SCI is relevant to the practice of medicine.	4.0	3.3
The lectures helped me learn the material.	3.2	2.8
The community clinic experience is a worthwhile component of the curriculum.	4.2	3.9
Spanish is a worthwhile component of the curriculum.	3.7	3.3
Overall, I learned useful knowledge and/or skills during SCI.	3.7	3.2
Number of Responses	51	79
Class Size	60	83
Response Rate	85%	95%

<b>SCI II</b>	2014	2015
SCI was well organized.	3.5	3.0
The learning objectives were clearly identified.	3.5	3.2
The course met the identified learning objectives.	3.7	3.1
The amount of material presented was reasonable.	3.9	3.4
I knew what I was supposed to be learning and why.	3.6	3.1
The methods used to evaluate my performance were fair	3.7	3.0
SCI broadens my perspectives.	3.6	3.0
The material covered by SCI is relevant to the practice of medicine.	3.7	3.3
The lectures helped me learn the material.	3.3	3.1
The community clinic experience is a worthwhile component of the curriculum.	3.9	3.6
Spanish is a worthwhile component of the curriculum.	3.6	3.4
My community preceptor understood the learning objectives.	--	3.5
My community preceptor ensured that the learning objectives were met.	--	3.5
Overall, I learned useful knowledge and/or skills during SCI.	3.7	3.2
Number of Responses	43	79
Class Size	57	83
Response Rate	75%	95%

Academic Year \_\_\_\_\_

<b>SCI III</b>	2013	2014
SCI was well organized.	2.5	2.9
The learning objectives were clearly identified.	2.9	2.9
The course met the identified learning objectives.	2.7	2.9
The amount of material presented was reasonable.	2.5	3.3
I knew what I was supposed to be learning and why.	2.6	2.9
The methods used to evaluate my performance were fair.	2.4	2.9
SCI broadens my perspectives.	2.8	3.1
The material covered by SCI is relevant to the practice of medicine.	3.3	3.1
The lectures helped me learn the material.	2.2	2.6
The community clinic experience is a worthwhile component of the curriculum.	4.2	3.5
Spanish is a worthwhile component of the curriculum.	3.4	3.5
Overall, I learned useful knowledge and/or skills during SCI.	3.3	3.0
Number of Responses	27	57
Class Size	37	57
Response Rate	73%	100%

<b>SCI IV</b>	2013	2014
SCI was well organized.	2.4	2.4
The learning objectives were clearly identified.	2.4	2.5
The course met the identified learning objectives.	2.2	2.6
The amount of material presented was reasonable.	2.3	3.2
I knew what I was supposed to be learning and why.	1.8	2.2
The methods used to evaluate my performance were fair	1.8	2.4
SCI broadens my perspectives.	2.7	3.0
The material covered by SCI is relevant to the practice of medicine.	2.8	3.2
The lectures helped me learn the material.	1.6	2.2
The community clinic experience is a worthwhile component of the curriculum.	4.1	3.5
Spanish is a worthwhile component of the curriculum.	3.7	3.5
Overall, I learned useful knowledge and/or skills during SCI.	3.2	3.0
Number of Responses	19	55
Class Size	37	58
Response Rate	51%	95%

Academic Year \_\_\_\_\_

*Identify major successes in the course and problems to be overcome.*

Successes:

The SCI course has provided students with the opportunity to learn more about the ecological model of health and to connect the social, cultural, community and family determinants to individual health. Anecdotally, several third year students have commented that the content they learned in SCI has been helpful in the clinical setting. They especially feel they are skilled at patient-centered interviewing, and that they can better communicate with Spanish Speaking patients. We have also had some success in integrating more with the clinical and basic sciences content, by scheduling SCI content to coincide with other courses such as Scientific Principles of Medicine, Medical Skills and Master's colloquium topics as much as possible. In the Spanish course, students study the vocabulary associated with the SPM unit they are working in. Students have been very happy with the community clinic experience in general.

Challenges:

There have been several challenges that we have been working to overcome. The course has received low evaluations, in part because the content has been provided in a sporadic manner, and because students have not always seen the connection of SCI to medical practice. Generally, students tell us that they think the content is important for future interactions with patients, but they sense that it is not content that is covered on the USMLE Step 1 exam, so they feel uncomfortable about having to learn it in the first 2 years of medical school. In order to better understand the issues, and to get input from students and faculty from the other courses, we held an SCI planning summit in January 2012. We received good feedback on how to improve the course. In response to the feedback, we have changed the course for Fall of 2012 so that Spanish meets weekly for one hour (instead of once every 2 weeks) and SCI class meets weekly for one hour. We are changing our Spanish faculty from a health science based faculty to a language and arts based faculty to improve language instruction. Spanish will be assessing students OSCEs with Spanish Speaking standardized patients. We have tried to make clearer links between SCI content and SPM, Medical Skills and Masters Colloquium through scheduling sessions so that they integrate better with the other courses. We have removed most of the epidemiology content from year one, and moved it into a more integrated course with biostatistics in year 2. The second half of the second year will be focused on how to read and critique the medical literature, applying epidemiology and biostatistics knowledge they have learned in the previous semester. This will enhance the applicability of biostatistics and epidemiology to medicine. We are adding online content so that students can prepare for class ahead of time, and do mostly hands-on practical and application exercises during class time.

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 10: Reproduction
<b>Sponsoring department or unit:</b>	Department of Obstetrics and Gynecology Department of Medical Education
<b>Name of course director:</b>	Sanja Kupesic, MD/ Dale Quest, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	15
Department of Obstetrics and Gynecology	6
Department of Family and Community Medicine	1
Department of Pathology	1

### COURSE OBJECTIVES

*Are there written objectives for the course?*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This unit of Scientific Principles of Medicine addresses human reproduction, pregnancy, and illnesses associated with the reproductive system and process. This course of instruction is organized around the following clinical presentations:

1. Infertility
2. Male reproductive system
3. Abnormal menstrual cycle
4. Contraception
5. Menopause
6. Pelvic floor relaxation
7. Screening and prevention
8. Sexually transmitted diseases
9. Abnormal genital track bleeding
10. Pelvic mass
11. Pelvic pain
12. Normal pregnancy
13. Pregnancy complications
14. Pregnancy loss

The sequence of these clinical presentations has been structured so that the concepts developed during the study of one topic lay down a foundation for subsequent topics. Students are provided with a brief

definition and a statement of clinical significance for each clinical presentation. This serves as the foundation for presentations of both clinical and basic science information. Gross, microscopic, and radiographic normal and abnormal anatomy are presented in laboratory and small group discussions (with “process worksheets” and “worked examples” as previously described).

Physical signs and symptoms associated with particular disease processes are provided along with a schematic representation of the relationships of causal entities. This list of causes and the associated schematic representation provide the basis for discussion of basic science principles including underlying anatomic, biochemical, and pathophysiological concepts. Basic science learning objectives are covered for each clinical presentation. Examples of the basic science content of this unit of SPM are listed in the topic appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets”) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***



*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This course is taught at only a single site, the campus of the PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine Unit 10: Reproduction
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on the number of items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group facilitators complete assessments on student performance in WCE sessions. These include space for narrative comments. Rating forms are uploaded into the student e-portfolio and are reviewed by the associate dean for student affairs, senior associate dean for medical education, and college masters who collaborate in formulating a summary narrative at the end of the year.

## COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. The PLFSOM enjoys excellent educational facilities including state-of-the-art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

In general we have sufficient faculty for this unit. There is a high level of support in the Department of Obstetrics and Gynecology for this unit and many participated in WCE small group sessions.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing "Strongly disagree" and 5 indicating "Strongly Agree."

<b>Reproduction Unit Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.8	4.3
The learning objectives were clearly identified.	4.1	4.3
The unit met the identified learning objectives.	4.0	4.4
The order of clinical presentations made sense to me.	4.1	4.1
The Basic Science material was well integrated.	2.9	4.2
The amount of material presented was reasonable.	4.2	4.0
I knew what I was supposed to be learning and why.	3.8	4.1
The methods used to evaluate my performance were fair.	4.1	4.0
The Clinical presentation "schemes" contributed to my learning.	4.3	4.3
The process work sheets contributed to my learning.	4.3	4.1
The lectures helped me learn the material.	3.8	4.2
The Work Case Examples helped me learn the material.	4.1	4.4
The self-taught sessions helped me learn the material	NA	3.7
Anatomy Labs helped me learn the material.	2.8	3.5
Female Infertility Integrative Lab helped me learn the material.	3.5	NA
Overall, I learned useful knowledge and/or skills during this unit.	4.4	4.5
N	32	55
Class size at date	37	57
Response Rate	86%	96%

*Identify major successes in the course and problems to be overcome.*

**Successes:**

- Students have highly valued the organization of the Unit and integration of basic and clinical science content.
- In 2011/12 male reproductive system was successfully incorporated in Reproduction Unit.
- Students' evaluations indicate that integration of scheme presentations with worked case examples and Medical Skills has facilitated mastering Reproduction Unit learning objectives.

**Challenges:**

- Improvements are to be made to self-taught sessions and Anatomy Lab activities to better fit the clinical science learning objectives.
- Improve the consistency of small group sessions. The clinician unit director will meet with the other small group facilitators to review goals, objectives and approach and give them an opportunity to ask questions and seek clarification.

## Topic Appendix: Reproduction Unit

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### 1. ANATOMY / HISTOLOGY / EMBRYOLOGY

#### Gross Anatomy

- Structure of the pelvis, bones and joints
- The inguinal region: structure, nerve supply
- Blood supply of the spermatic cord, and scrotum
- Nerve supply and blood supply of the male internal genitalia
- Urogenital region
  - Urogenital triangle
  - Urogenital diaphragm
  - Superior and inferior fasciae
  - Superficial and deep perineal pouches
  - Pudendal nerve and internal pudendal artery, pudendal canal
  - Superior pubic ligament and the arcuate pubic ligament
  - Lymphatic drainage and the structures of the male pelvis
- Visual learning objectives for gross anatomy
- Ovary and the female reproductive system
- Pelvis, bones and joints of the pelvis, the walls and floor of the pelvis
- Pelvic diaphragm and the levator ani
- Nerves of the pelvis including the pudendal nerve the pudendal canal
- Arteries of the pelvis, vaginal arteries
- Pelvic autonomic nerves
- Urogenital region
  - Urogenital triangle
  - Urogenital diaphragm
  - Associated musculature
  - Superior and inferior fasciae of diaphragm
  - Superficial and deep perineal spaces
  - Female internal genital organs
- Structure, blood supply, and nerve supply of the vagina, uterus, uterine tubes, and ovaries
- Vaginal anatomy
  - Relationship of the vagina to the perineal body
  - Sphincters of the vagina

- Vaginal artery
- Uterus and ovaries
  - Uterine artery and internal pudendal artery
  - Anastomosis between ovarian branch of uterine artery and the ovarian artery
  - Broad ligaments, round ligaments
  - Suspensory ligament of the ovary, and the uterosacral ligament
  - Pelvic fascia, peritoneum, bladder, uterus, and rectum
- Retropubic space and female perineum
- External genitalia
  - Blood supply and nerve supply of the mons pubis
  - Labia majora and minora
  - Vestibule of the vagina
  - External urethral orifice and Bartholin's gland
  - Lesser vestibular glands
  - Clitoris and the bulbs of the vestibule
- Lymphatic drainage of the structures of the female pelvis
- Anatomy and lymphatic drainage of the breast
- Visual learning objectives for gross anatomy

### **Histology**

- Ovary and female reproductive system
  - Histogenesis and histological organization of the ovary
  - Oogenesis and comparisons with spermatogenesis
  - Organization, function and development of the ovarian follicle
  - Histophysiology of the ovarian follicle
  - Cells producing steroid hormones and sources of steroid precursors
- Target cells of pituitary gonadotropins
  - Trophic action of gonadotropins
  - Apoptosis upon diminished gonadotropin secretion
- Generic structure of visceral canals, layers of the oviduct and vagina
- Histological organization of the uterus
- Implantation, formation, development and structure of the human placenta
- Mammary gland during and after lactation
- Hormones and the gonadostatic function of the pineal gland.

## **Embryology**

- Ovary and female reproductive system
  - Development of the gonads
  - Absence of the Y-chromosome gene on female reproductive system
  - Derivation of the primordial follicles
  - Müllerian ducts
    - Development of the female reproductive system
    - Uterovaginal primordium
  - Uterine and associated tissue
    - Fallopian tubes
    - Uterus
    - Superior portion of the vagina
  - Formation of the broad ligaments, rectouterine pouch, and vesicouterine pouch
  - Inferior two-thirds portion of the vagina
  - Development of the auxiliary genital glands and external genitalia
- Female reproductive cycle with emphasis on the ovarian cycle
  - Gametogenesis and oogenesis
  - Origin of the corpus luteum from the remaining granulosa and thecal cells
  - Origin of the placenta, beginning at implantation, developing through parturition
  - Parturition, stages of labor, and hormonal control

## **2. BIOCHEMISTRY**

- Estrogens, progesterone and the female reproductive system
  - Synthesis and secretion pathways for the synthesis of estradiol and progesterone and their tissue location
  - Transport and metabolism of the steroid hormone carrier proteins and their sites of synthesis
  - Signal transduction, mechanism by which estrogens and progesterone exert their effects on tissues
  - Menstrual cycle and pregnancy hormonal changes that take place during pregnancy and the function of the various hormones
  - Parturition and lactation, hormonal changes that occur during and after parturition, and the function of the individual hormones, hormones that participate in lactation, and their individual roles

## **3. GENETICS**

- Genetics of gender

- Genetic disorders of endocrine function

#### **4. NUTRITION**

- Special nutritional needs during pregnancy, parturition, and lactation
  - Potentially deleterious nutritional deficiencies
    - Methods of and rationale for the nutritional assessment of the pregnant woman
    - Recommended dietary allowances for pregnancy and lactation
    - Vitamins and minerals important prevention of anemia during pregnancy and their functional biochemistry
    - Nutritionals important for prevention of birth defects
  - Potentially deleterious nutritionals, teratogens and toxicants
    - Nutritional supplements, caffeine, alcohol, drugs and exercise in pregnancy
    - Risk factors for abnormal fetal birth weight
    - Fetal alcohol syndrome and other developmental abnormalities

#### **5. PATHOLOGY**

- Female genital system and breast
  - Female genital tract
    - Clinical, gross and microscopic features of the neoplasms
    - Relationship of in utero exposure to diethylstilbestrol in vaginal adenosis and adenocarcinoma
    - Role of human papillomavirus (HPV) in carcinoma of the cervix
    - Cervix and cervical dysplasia, squamous carcinoma - in-situ, invasive squamous carcinoma and adenocarcinoma
    - Histologic appearance of the endometrium
      - Anovulatory cycles
      - Prolonged oral contraceptive use
      - Ingestion of progestational agents
      - Endometrial hyperplasia
      - Endometrial adenocarcinoma
    - Gross and microscopic features
      - Leiomyoma
      - Leiomyosarcoma
      - Adenomyosis
      - Endometriosis



- Endometrial hyperplasia
- Etiologies and potential complications of pelvic inflammatory disease
- Ectopic pregnancy
- Major features of polycystic ovary syndrome
- Chronic endometriosis
- Ovarian neoplasms
- Placenta and pathology of placentation
- Gestational trophoblastic disease
- The breast
  - Clinical findings and dominant histological features of acute mastitis and breast abscess, plasma cell mastitis (duct ectasia), fat necrosis of the breast
  - Fibrocystic disease of the breast
  - Breast neoplasms: patterns of presentation, gross and microscopic features, patterns of metastasis (if any), and prognosis
  - Staging and prognostic factors (molecular, microscopic, clinical) that influence the clinical outcome of breast cancer
  - Significant abnormalities of the male breast, gynecomastia and carcinoma

## **6. PHARMACOLOGY**

- Ovary and female reproductive system
  - Natural and synthetic estrogens
    - Selective estrogen receptor modifiers
    - Antiestrogens
    - Estrogen synthesis inhibitors
  - Natural and synthetic progestins
    - Anti-progestins
    - Combination oral contraceptives
  - Therapeutic uses of estrogens and progestins
    - Hypogonadism
    - Postmenopause
    - Contraception
    - Osteoporosis
    - Cancer
- Ovulation induction
  - GnRH agonists and antagonists

- Gonadotropins
- Osteoporosis: prevention and treatment
- Agents that cause contraction and relaxation of the uterus
- Prostaglandins in obstetrics

## **7. PHYSIOLOGY**

- Ovary and female reproductive system
  - Secretion and chemical nature of female sex steroid hormones
  - Function of the hypothalamic-pituitary-gonadal axis and “feedback” in males
  - Regulation of synthesis and secretion
    - LH, FSH, prolactin
    - Female sex steroid hormones
    - Gonadotropin releasing hormone
- Endocrine influences on the function of the female reproductive system
  - Uterine endometrium and the menstrual cycle
    - Changes in the ovaries
    - FSH and LH
    - Estrogens and progesterone
    - Normal ovulatory menstrual cycles
    - Anovulatory menstrual cycle
    - Consequence of androgen production in the female
  - Pregnancy
    - Estrogen and progesterone
    - Human chorionic gonadotropin
    - Human placental lactogen
  - Endocrine functions of the placenta
  - Factors responsible for initiation and control of parturition
  - Hormones in breast development, milk synthesis, and milk release
  - Functions of the primary and accessory reproductive structures in the female
  - Physiological changes which occur during pregnancy for both the mother and the fetus

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 11: The Mind and Human Development
<b>Sponsoring department or unit:</b>	Departments of Medical Education, Pediatrics and Psychiatry
<b>Name of course director:</b>	Tania Arana, PhD, Richard Brower, MD, Blanca Garcia, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	15
Department of Pediatrics	12
Department of Psychiatry	7
Department of Family and Community Medicine	2
Department of Internal Medicine	1
Department of Biomedical Science	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

The Mind and Human development unit of SPM addresses normal and abnormal bio-behavioral developmental process across the life span beginning at birth through old age and senescence. This unit builds on the foundation laid by the unit on human reproduction which precedes it. The following clinical presentations have been assigned to Unit 11:

1. Developmental Health and Disease: Infant –Toddler (ages 0-2)
2. Sudden Infant Death Syndrome and Acute Life Threatening Events (Self-Taught Module)
3. Development Health and Disease in Early Childhood (ages 2-8)
4. Developmental Health and Disease in the Pre-Teen Years (ages 8-12)
5. Developmental Health and Disease in Adolescent Patients (ages 13+)
6. Oral Health (Self-Taught module)
7. Mood Disorders
8. Anxiety and Panic Disorders
9. Psychosis-Disordered Thought
10. Falls in the Elderly (Self-Taught Module)
11. Substance Abuse, Dependence, and Withdrawal
12. Dementia
13. Sleep and Circadian Rhythm Disorders

Academic Year \_\_\_\_\_

As with all of the units that fall under the Scientific Principles of Medicine (SPM) course umbrella, the sequence of clinical presentations have been structured so that concepts developed during the study of one topic provides a foundation for subsequent topics. The basic science content and concepts addressed in this unit are those that the faculty deems are essential for understanding a given presentation. Example basic science topics addressed in this unit of SPM are included in the appendix at the end of this course description. This content is provided to students through lecture, laboratory sessions, problem solving small group interactions, and self-study modules.

***Preparation for Teaching***

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This course is taught at only one site—the campus of the PLFSOM.

Academic Year \_\_\_\_\_

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Mind and Human Development
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 20-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to provide

Academic Year \_\_\_\_\_

formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persisted, despite feedback, could be referred to the Grading and Promotion committee for action.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

At the end of the unit students complete anonymous on-line course evaluations employing a 5 point scale with a 1 representing dissatisfaction/disagreement with an item and a 5 representing a high level of satisfaction/agreement.

<b>Mind &amp; Human Development Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.2	2.9
The learning objectives were clearly identified.	3.2	3.3
The unit met the identified learning objectives.	3.4	3.2
The order of clinical presentations made sense to me.	3.6	3.3
The Basic Science material was well integrated.	3.4	3.3
The amount of material presented was reasonable.	3.1	3.7
I knew what I was supposed to be learning and why.	3.4	2.9
The methods used to evaluate my performance were fair.	3.0	3.2
The Clinical presentation "schemes" contributed to my learning.	3.6	3.3
The process work sheets contributed to my learning.	3.4	3.2
The lectures helped me learn the material.	3.5	3.0
The Work Case Examples helped me learn the material.	3.5	3.9
The self-taught modules helped me learn the material	NA	3.1
Anatomy Labs helped me learn the material.	3.0	NA
Overall, I've learned useful knowledge and/or skills during this unit.	3.7	3.5
N	12	55
Class size at date	37	57
Response Rate	32%	96%

Academic Year \_\_\_\_\_

*Identify major successes in the course and problems to be overcome.*

*Successes:*

- This unit of SPM was modified following the AY 2010-11 to place more emphasis on developmental themes. This enabled us to reduce redundancy that students did not find particularly helpful despite the intended goal of review in a pediatric context.

*Challenges:*

- Students perceived this unit as being somewhat disorganized. We agree. Some of this disorganization can be attributed to the substantial changes required to highlight development as the organizing theme of the unit.
- The self-taught modules on Sudden Infant Death and Acute Life Threatening Events, Oral Health, and Falls in the Elderly were not particularly well received by students and may have contributed to the perception that they were not well integrated with other components of the unit.
- The Psychosis-Disordered Thought and Substance-Abuse clinical presentations need improvement.

*Improvement Plan:*

- To improve how the organization and flow of the unit are perceived the Unit co-directors plan to unify the efforts of the clinical medical educators/scheme presenters. They will be asked to coordinate their efforts to create threads that stream through the human development presentations such that each presenter identifies the unique features of the physical , sexual , emotional and cognitive development for each stage.
- Unit directors have identified the need to improve exam items. In particular each item must be unique and not identifiable from available learning resources. All items will be reviewed by the authors and vetting teams for uniqueness as the unit progresses this year.
- Certain psychiatry topics had not received the appropriate attention and will emphasis will be increased. In particular, efforts will be made to include the topics of Personality Disorders and Defense Mechanisms.
- The Department of Medical Education will be adding an experienced clinician medical educator in July 2012. He will play a major role in the planning and implementation of this unit in the future.

## **Appendix: Topic List for Mind and Human Development**

### **1. BEHAVIORAL SCIENCE**

- Characterization and assessment of human behavior
  - Development
  - Psychological assessment
  - Personality
  - Learning and memory
  - Psychosocial determinants of behavioral and cognitive health
- Established disorders of human behavior
  - Structure and use of the DSM-IV-TR
  - Autism spectrum disorders
  - Stress and coping mechanisms
  - Personality disorders
  - Anxiety disorders
  - Mood (affective) disorders
  - Attention disorders and disruptive behavior in children
  - Disorders of thought and psychotic disorders, including schizophrenia
  - Dementia and delirium
  - Circadian rhythms and sleep, normal and abnormal states/conditions
- Relationship of organic illness or physiologic changes on human behavior
  - Pregnancy
  - Cardiovascular risk
  - Pain and coping mechanisms
  - HIV and the individual
- Interpersonal relationships and human behavior
  - Families, relationships, and health
  - Violence and suicide
  - Sexuality & sexual dysfunction
- Human behavior and pharmacologically active agents
  - Adherence to medical regimens
  - Substance abuse, addiction and withdrawal
  - Consequences of maternal/prenatal substance abuse

### **2. BIOCHEMISTRY**

- Metabolism of the brain and central nervous system in health and disease
  - Glucose and carbohydrates
  - Nitrogen, ammonia and the urea cycle
  - Amino acid categorization, metabolism and metabolic disorders
  - Fatty acid metabolism
  - Lipolysis, beta-oxidation, gluconeogenesis and ketogenesis
  - The TCA cycle and the respiratory/electron-transport chain
  - Organic acids and organic acidurias
  - Lipids and myelin
  - Serotonin and neuroactive transmitters
  - Thiamine and thiamine deficiency
- Biochemical mechanisms in degenerative diseases
  - Alzheimer disease
  - Amyloidosis
  - Prion diseases



### **3. GENETICS**

- Genetic aspects of newborn screening
- Genetic aspects of behavioral and cognitive disorders

### **4. NUTRITION**

- Nutrition, malnutrition and development
- Psychosocial and behavioral aspects of nutrition
- Eating disorders
- Nutritional rehabilitation

### **5. PHARMACOLOGY** (uses, mechanisms of action, pharmacokinetics, and adverse effects)

- Pharmacology and human development
  - Developmental aspects of pharmacokinetics
  - Steroids and sexual development
- Pharmacology and behavior, mental health and cognition
  - Stimulant drugs
  - Cholinergic drugs
  - Anticholinergic drugs
  - Indirect-acting sympathomimetic agents
  - Indirect-acting sympatholytic agents
  - Serotonergic drugs
  - Dopamine antagonists
  - Antipsychotic agents
  - Sedatives, hypnotics and anxiolytics
  - Drugs used to treat ADHD
  - Drugs used to treat affective disorders
  - Drugs of abuse
  - Pharmacology of tobacco dependence
  - Drugs used in dementias
  - Antiepileptic drugs as mood stabilizers
  - Prescribing CNS drugs for the elderly

### **6. PHYSIOLOGY**

- Physiology of human development
  - Lung maturation and surfactant
  - Circulatory system maturation
  - Maturation of liver function
  - Control of sexual development
  - Control of linear growth and body mass
- Physiology and neuroscience of behavior, mental health and cognition
  - Physiology of circadian rhythms and sleep
  - Physiology of stress
  - Physiology of substance abuse\
  - The limbic system
  - Neuroscience of mood disorders
  - Neuroscience of psychosis and schizophrenia
  - Neuroscience of dementia

### **7. ANATOMY/NEUROANATOMY**

- Development of the nervous system (review and elaboration)
- Anatomy of the limbic system and Papez circuit

Academic Year \_\_\_\_\_

## **8. MICROBIOLOGY**

- Developmental aspects of infectious disease
- Infectious diseases of the premature and newborn infant
- TORCH infections

## **9. IMMUNOLOGY**

- Prematurity and the immune system
- Development of the immune system
- Primary and secondary immune deficiencies
- Childhood allergies
- Aging and the immune system

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 7: Central Nervous System/ Special Senses
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	Richard Brower, MD/Dale Quest, PhD/Debra Bramblett, PhD/Asa Black, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	13
Department of Surgery	7
Department of Emergency Medicine	3
Department of Internal Medicine	1
Department of Family Medicine	1
Department of Neurology	2
Department of Radiology	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This unit is organized into three major components: neurological, with an emphasis on the central nervous system (the peripheral nervous system is integrated into the musculoskeletal/integumentary system unit in year 1), ophthalmology, and otolaryngology. This unit of SPM, the first unit of year 2, includes the following clinical presentations:

1. Gait disturbance
2. Movement disorders
3. Headache
4. Seizures
5. Stroke and Aphasia
6. Delirium, Stupor, and Coma
7. Red Eye
8. Diplopia/Strabismus
9. Smell/Taste
10. Hearing loss
11. Dizziness/Vertigo

This unit presents an integrated approach to the structure, function, and organization of the central nervous system in the context of major neurological abnormalities affecting vision, hearing, smell and

taste. As previously described for the other units in the Scientific Principles of Medicine course, each clinical presentation includes a schematic representation illustrating a clinical approach to the presentation as a device for organizing thinking about the problem and for organizing foundational science content and concepts necessary for understanding underlying pathophysiological processes. The clinical reasoning processes are incorporated into a process work sheet based on the scheme that can be used as a resource for analyzing cases presented in small group “worked case example” sessions. Each of the basic science disciplines provides learning objectives related to the appropriate scientific concepts of anatomy (including gross and microscopic anatomy, embryology, neuroanatomy and radiographic anatomy), biochemistry, physiology, genetics, immunology, microbiology, pharmacology, and pathology related to the organ systems and clinical problems addressed in the unit. Example basic science topics included in this unit can be found in the appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		X
Graduate Students		X
Postdoctoral Fellows		X

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***  
 Not applicable.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

The course is taught at only one site, the campus of the Paul L. Foster School of Medicine.

**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not Applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty. To facilitate this review, students are also provided copies of the learning objectives associated with items they missed on the formative exam.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Small group “worked case example” facilitators complete a brief assessment of student performance in the small group session and they are encouraged to provide written comments on each student in their groups. These assessments and comments are uploaded to the student’s e-portfolio. In addition, on an

annual basis, the college masters, associate dean for student affairs, and the senior associate dean for medical education, review all small group evaluation forms and comments and based on this information they draft a summary narrative noting student strengths and areas for further growth and development.

<b>Course title:</b>	Scientific Principles of Medicine Unit 7: CNS/Special Senses Unit
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This is provided primarily as formative feedback. However, if serious problems are detected that persist despite feedback and advisement, the student may be referred to the Student Grading and Promotion Committee for discussion with the student and the determination of appropriate remedial action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This interdisciplinary unit is taught by faculty drawn from a number of clinical departments as well as the basic science and clinical faculty members in the department of medical education. We have sufficient faculty to implement this unit in the SPM course. As class size expands over the next few years to an eventual class of 100 students, we will need to enlarge our pool of potential small group facilitators.

There is ample teaching space available for the course, including a small classrooms, lecture space, laboratories, clinical simulation laboratories, and gross anatomy dissection laboratories. Computers, computer software, library resources, and the personnel needed to support computer-based and library-based instruction are adequate to meet the teaching needs.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing “Strongly disagree” and 5 indicating “Strongly Agree.”

<b>Special Senses Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.3	3.6
The learning objectives were clearly identified.	3.2	3.8
The unit met the identified learning objectives.	3.2	3.9
The order of clinical presentations made sense to me.	3.5	3.8
The Basic Science material was well integrated.	3.2	3.8
The amount of material presented was reasonable.	3.4	4.0
I knew what I was supposed to be learning and why.	3.2	4.0
The evaluation methods were fair	3.6	3.8
The Clinical presentation "schemes" contributed to my learning	3.1	3.3
The process work sheets contributed to my	2.6	3.0
The lectures helped me learn the material.	3.6	3.9
The Work Case Examples helped me learn the material.	3.6	3.8
Anatomy Labs helped me learn the material.	2.8	3.6
Overall, I learned useful knowledge and/or skills	3.7	4.1
N	18	62
Class size at date	37	62
Response Rate	49%	100%

*Identify major successes in the course and problems to be overcome.*

Successes:

- This Unit fulfills its essential educational objectives. In addition to our typical combination of full-time MS1-2 Medical Educators and faculty recruited from the clinical departments, this success has been achieved through creative utilization of community-based faculty resources in the clinical specialties of ophthalmology and otolaryngology. Given their high value, this approach will remain essential even as the school develops and recruits full-time faculty in these disciplines.

Challenges:

- Maintaining the commitment and enthusiasm of our non-salaried community-based faculty in the relatively high value specialties of ophthalmology and otolaryngology will require substantial effort, as will development and integration of full-time faculty in these disciplines.
- This Unit currently received substantial faculty support from the Department of Neurology and that Department is undergoing re-development due to natural/expected levels of attrition. Although this creates some minor challenges, there remains adequate support for the neurological components of the MS1-2 curriculum and substantial growth of the Department of Neurology is anticipated. Despite these challenges, we will be able to deliver this unit in the future.
- Compared to other Units, the clinical schemes and process worksheets for this Unit received less favorable student evaluations. The Unit Co-Directors and faculty presenting the Clinical Schemes have reviewed these materials and consider them adequate. As our faculty resources expand and new contributors with relevant expertise are identified, these materials will undergo review and revision. If deemed necessary through the centralized/CEPC-led course review process, external consultants may be engaged to review and suggest improvements for these materials



## Topic Appendix: CNS and Special Senses Unit

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### 1. ANATOMY / HISTOLOGY / EMBRYOLOGY

#### **Gross Anatomy**

- Spinal Cord
- Brainstem and Cerebellum
- Brain
- Orbit and oculus
- Tongue and papillae
- Vestibular and auditory anatomy
- Larynx
- Radiographic (visual) anatomy (X-rays, CTs, MRIs, etc.)

#### **Microscopic anatomy/histology**

- Nervous tissues
- Eye
- Tongue and papillae

#### **Embryology**

- Development of the nervous system and special senses
- Nervous system teratology

#### **Neuroanatomy**

- Spinal cord
- Brainstem and cranial nerves
- Cerebellum
- Basal ganglia
- Retina
- Optic chiasm
- Optic tract
- Visual cortex
- Lateral geniculate nucleus
- Taste and Olfaction
- Cochlea
- Vestibular apparatus
- Vestibulocochlear nerve, medial geniculate nucleus, auditory pathway
- Blood supply/vasculature of the central nervous system

## **2. MICROBIOLOGY/IMMUNOLOGY**

- Infectious etiologies of myelitis, meningitis and encephalitis (bacteria, viruses and fungi)
- Infectious etiologies of eye disease (bacteria, viruses and fungi)
- Infectious etiologies of ear disease (bacteria, viruses and fungi)

## **3. NUTRITION**

- Sensory disorders associated with vitamin deficiency
- Sensory disorders associated with vitamin excess
- Role of nutrition in selected sensory disorders

## **4. PATHOLOGY**

- Central nervous system pathology
- Cerebrospinal fluid analysis
- Eye and visual system pathologies
- Ear, auditory and vestibular system pathologies
- Gustatory and Olfactory disorders

## **5. PHARMACOLOGY**

- Drugs for ophthalmic indications
  - mydriatics and miotics
  - reduce intraocular pressure
  - treat infections
  - treat retinal degenerative disorders
- Pharmacology of movement disorders
- Drugs for ear, nose and throat infections
- Drugs for epilepsy

## **6. PHYSIOLOGY**

- Regulation of intracranial pressure
- Cerebrospinal fluid production, circulation and elimination
- Neuroscience
  - Receptor functions of the retina and photo-transduction
  - Central visual pathways
  - Visual neurophysiology
  - Pupillary reflexes and control of eye movements
  - Auditory and vestibular neurophysiology
  - Gustatory neurophysiology
  - Function of the cerebellum and its pathways

Academic Year: 2011-12

- Neuroscience of movement disorders
- Physiological basis of electroencephalography
- Neuroplasticity

### **7. GENETICS**

- Mitochondrial diseases
- Trinucleotide repeat diseases

### **8. MOLECULAR AND CELLULAR BIOLOGY**

- Amyloid diseases
- Inborn errors of metabolism
- Toxic and metabolic mechanisms of delirium, stupor and coma

### **9. BEHAVIOR AND PSYCHOLOGY**

- Delirium
- Somatoform disorders
- Neuropsychology of learning and memory
- Neuropsychology of language

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 8: Renal System
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Stephen Sandroni, MD/Amy Trott, PhD/Herb Janssen, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Department of Medical Education	13
Department of Internal Medicine	5
Department of Emergency Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

In prior years the renal and endocrine systems were joined in a single unit of the Scientific Principles of Medicine course. However, as described elsewhere in this database, a general review of the timing, sequence, and organization of the organ system units resulted in the decision to “uncouple” the renal and endocrine systems and make these systems independent units within the overall course. However, the content and the clinical presentations that had previously been included in the joined unit remain largely unchanged.

The 6-week renal unit focuses on fluids, electrolytes, homeostatic mechanisms, and the role of the kidney in the process of regulation. The clinical presentations associated with this unit include the following:

1. Abnormalities of renal function
2. Disorders of serum sodium
3. Intrinsic renal disease
4. Abnormalities of hydrogen ion concentration
5. Renal failure: acute injury
6. Renal failure: chronic renal disease

This unit and the endocrine unit which follows are presented as model homeostatic systems with an emphasis of content related to biochemistry and physiology. Gross and microscopic anatomy is integrated with gross and microscopic anatomic pathology and is also correlated with radiographic anatomy. Microbiological, immunological and pharmacological content are also addressed. The sequence of clinical presentations has been structured so that the concepts developed during the study of

one topic provide a foundation for the subsequent topic. As with the other courses in the SPM sequence, basic information is provided for each clinical presentation including a brief definition, a statement of its clinical significance, and a list of the potential causes for the presentation. “Process worksheets” and “worked case examples” are employed by the small groups as in previous SPM units. The major clinical emphasis is on adult conditions, but pediatric renal conditions are also presented.

A list of basic science topics that are covered in this unit can be found in the attached Topic Appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		X
Graduate Students		X
Postdoctoral Fellows		X

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This unit of instruction is offered at a single site on the campus of the Paul L. Foster School of Medicine.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine: Unit 8 Renal
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty. To facilitate this process, students are provided a list of learning objectives associated with items they missed on the formative assessment.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group facilitators for weekly Worked Case Example sessions are asked to complete an assessment form on each student in the group. This form includes space for narrative comments. These assessment forms are posted in each student's e-portfolio.

## COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

The unit is taught as an interdisciplinary component of the Scientific Principles of Medicine course drawing faculty from different departments in the Paul L Foster School of Medicine. The basic science faculty and many of the clinical faculty teaching in the course are members of the Medical Education Department. Other clinical faculty members from the Department of Internal Medicine assist in the clinical integration. A course coordinator and assessment coordinator for year 2 courses/units provides logistical assistance and assistance with the day-to-day management of the delivery of the unit. In addition IT and Audiovisual staff are available to assist course directors and faculty. There is ample teaching space available for the course, including a sufficient number of small group classrooms, lecture space, laboratories, clinical simulation laboratories, and gross anatomy dissection space. Computers, computer software, library resources, and the personnel needed to support computer-based and library-based instruction are adequate to meet the teaching needs.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing "Strongly disagree" and 5 indicating "Strongly Agree."

<b>Unit 8 Evaluation Data</b>	<b>2010-2011 Renal/ Endocrine</b>	<b>*2011-2012 Renal</b>
This unit was well organized.	3.5	3.6
The learning objectives were clearly identified.	3.9	4.0
The unit met the identified learning objectives.	3.9	4.0
The order of clinical presentations made sense to me.	3.5	3.7
The Basic Science material was well integrated.	3.5	3.7
The amount of material presented was reasonable.	3.7	4.2
I knew what I was supposed to be learning and why.	4.0	3.9
The methods used to evaluate my performance were fair	3.9	3.7
The Clinical presentation "schemes" contributed to my learning.	3.9	3.7
The Process Worksheets contributed to my learning.	3.7	3.5
The lectures helped me learn the material.	4.1	3.6
The Work Case Examples helped me learn the material.	3.9	4.0
The Anatomy labs helped me learn the material.	2.7	3.5
Overall, I've learned useful knowledge and/or skills during this unit.	4.3	4.2
N	24	57
Class size at date	37	58
Response Rate	65%	98%

\*Please note: In 2011-12, the renal and endocrine components of the curriculum were divided into two units rather than being integrated into one. The content for each discipline remained the same.

*Identify major successes in the course and problems to be overcome.*

**Successes:**

Student performance on renal questions on the USMLE Step 1 was among the two best areas in our curriculum. Informal feedback from clinical clerkship faculty has indicated that our third year students are performing as well as residents in areas of acid-base and electrolyte abnormalities.

**Challenges:**

Optimal delivery of our core physiology and pathology remains a challenge. Student evaluations favor passive delivery modes over more active engagement on their part, but their performance has not suffered from more active modes. Our informal survey of student knowledge of renal pathology, done a few months after the course ended, suggested that students were not yet able to use their knowledge in a successful analytic way. Apparently their own additional study later in the year helped them to reach a higher level of learning. Our experience mirrors that of other schools we are in contact with via a renal teaching listserv that we subscribe to. We lean toward reduced formal lecturing with increased use of problem-solving sessions supervised by faculty. Specifically we are looking to accumulate additional teaching cases that are more complex than our Worked-Case Examples, and use these as a springboard for sessions requiring higher level problem solving on the part of the students.



Topic Appendix: Renal Unit

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**1. ANATOMY / HISTOLOGY / EMBRYOLOGY**

- Evolution of the nephron from marine life to terrestrial mammals
- Urinary system
- Visual anatomy
- Radiological anatomy
- Embryological development of the urogenital system
- Histology of kidneys and urinary tract

**2. BIOCHEMISTRY**

- Renal metabolism
- Hormonal regulation of salt and water balance

**3. GENETICS**

- Renal disease of genetic origin

**4. MICROBIOLOGY/IMMUNOLOGY**

- Urinary tract infections
- Sexually transmitted diseases
- Bacteriology, virology, and parasitology
- Transplantation, tumor immunity and immunotherapy

**5. NUTRITION**

- Nutrients and kidney function
- Nutritional and metabolic consequences of chronic renal failure
- Dietary management of chronic renal disease
- Sodium, diet and hypertension

**6. PATHOLOGY**

- Kidney
- Lower urinary tract

**7. PHARMACOLOGY**

- Autonomic pharmacology and the urogenital tract
- Drug pharmacokinetics and renal effectors
  - Nonsteroidal anti-inflammatory agents
  - Adrenocortical steroids – renal effects
  - Agents that affect calcium and phosphate homeostasis
  - Diuretics and renal function
- Cancer chemotherapy
- Penicillins and cephalosporins

Academic Year \_\_\_\_\_

- Aminoglycosides
- Tetracyclines, azithromycin and erythromycin
- Sulfonamides, trimethoprim and quinolones
- Urinary antiseptics
- Anti-schistosomal drugs
- Gout and purine metabolism
- Immunosuppressive agents

## **8. PHYSIOLOGY**

- Renal structural-functional relationships, glomerular filtration and renal blood flow.
- Solute and water transport along the nephron, including mechanisms of secretion and absorption
- Urine concentration and dilution
- Regulation of acid base balance

1

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 9: Endocrine
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Stephen Sandroni, MD/Curt Pfarr, PhD/Amy Trott, PhD /Elmus Beale, PhD/Tamis Bright, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Medical Education	15
Internal Medicine	9
Family Medicine	2
Biomedical Sciences	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This six week unit of Scientific Principles of Medicine addresses glucose, lipids, intermediary metabolism of these entities, and diseases processes associated with their abnormalities in the context of the following clinical presentations:

1. Hypertension
2. Hypothalamus/Pituitary Axis
3. Disorders of thyroid function
4. Diabetes and obesity

The sequence of these clinical presentations has been structured so that the concepts developed during the study of one topic provide a foundation for the subsequent topic. As with the other courses in the SPM sequence, basic information is provided for each clinical presentation including a brief definition, a statement of its clinical significance, and a list of the potential causes for the presentation. "Process worksheets" and "worked case examples" are employed by the small groups as in previous SPM units.

Basic information is provided for each clinical presentation, including a brief definition and a statement of its clinical significance. A list of the potential causes for the presentation is addressed along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation provides the basis for discussion of basic science principles including underlying anatomic, biochemical, and patho-physiological concepts. Management concerns including appropriate

pharmacology are discussed. A list of basic science topics covered in this unit can be found in the attached Topic Appendix.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents*		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

\*On occasions a resident may accompany a faculty member to observe and participate in WCE sessions. The faculty member, however, is responsible for conducting the session and evaluating student participation.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

Instruction in this course takes place at one site only, the campus of PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine: Endocrine Unit
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to be provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, could be referred to the Grading and Promotion committee for action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. The PLFSOM enjoys excellent educational facilities including state-of-the-art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

In general we have sufficient faculty for this unit, but did experience some challenges in finding enough tutors for the small group “Worked Case Example” sessions. It was necessary on a few occasions to combine into larger groups. (See challenges section below.)

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students completed an anonymous on-line evaluation at the end of this unit of the SPM course. We used a 5-point scale with 5 indicating a high level of agreement/satisfaction.

<b>Endocrine Unit Evaluation Results</b>	<b>2010-2011 Renal/ Endocrine</b>	<b>2011-2012 *Endocrine</b>
This unit was well organized.	3.5	3.5
The learning objectives were clearly identified.	3.9	4.1
The unit met the identified learning objectives.	3.9	4.1
The order of clinical presentations made sense to me.	3.5	3.1
The Basic Science material was well integrated.	3.5	3.9
The amount of material presented was reasonable.	3.7	4.1
I knew what I was supposed to be learning and why.	4.0	4.1
The methods used to evaluate my performance were fair.	3.9	4.0
The Clinical presentation "schemes" contributed to my learning.	3.9	4.1
The Process Worksheets contributed to my learning.	3.7	4.2
The lectures helped me learn the material.	4.1	4.1
The Worked Case Examples helped me learn the material.	3.9	4.1
The self-taught modules helped me learn the material.	NA	2.8
The Anatomy labs helped me learn the material.	2.7	NA
Overall, I've learned useful knowledge and/or skills.	4.3	4.2
N	24	58
Class size at date	37	58
Response Rate	65%	100%

Academic Year: 2011-12

\*Please note: In the 2011-12 Academic Year Endocrine was treated as a separate unit and evaluated separately.

*Identify major successes in the course and problems to be overcome.*

Successes:

- Students performed well in this unit and performed well on NBME Comprehensive Basic Science Exam on items linked to the endocrine system.
- Students are generally quite satisfied with this unit.

Challenges:

- Students expressed concern about the order of the clinical presentations. The faculty is considering re-sequencing of presentations to address diabetes and obesity earlier in the unit.
- Students expressed dissatisfaction with the “self-taught” approach to pharmacology. We are recruiting an additional pharmacologist to reduce teaching burden and will schedule more face-to-face contact time next year.
- We do not have enough Endocrinologists on faculty to serve as facilitators of small groups (n=10) with expanding class size. Next year we will expand our invitation to family physicians and general internists. Faculty in these specialties are well prepared to serve as tutors for second year medical students being introduced to common endocrine problems.

Topic Appendix: Renal/Endocrine Unit

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**1. ANATOMY / HISTOLOGY / EMBRYOLOGY**

***GROSS***

- Neuroendocrinology - hypothalamus/pituitary
- Thyroid and parathyroid
- Adrenal gland

***HISTOLOGY***

- Pancreatic islets
- Neuroendocrinology & hypothalamus/pituitary
- Thyroid and parathyroid glands
- Adrenal gland
- Amine precursor uptake and decarboxylase (APUD) cells

***EMBRYOLOGY***

- Pancreatic islets
- Neuroendocrinology - hypothalamus/pituitary
- Thyroid and Parathyroid
- Adrenal gland
- Amine precursor uptake and decarboxylase (APUD) cells
- Pineal gland

**2. BIOCHEMISTRY**

- Pancreatic islet hormones
  - Glucagon
  - Insulin
  - Somatostatin
  - Pancreatic polypeptide
- Hypothalamus and pituitary
- Thyroid gland and parathyroid
- Adrenal
  - Cortex
  - Adrenal medulla
  - Enterochromafin cells
- Regulation of fuel homeostasis



### **3. GENETICS**

- Genetic disorders of endocrine function

### **4. MICROBIOLOGY/IMMUNOLOGY**

- Immune modulators of pancreatic islets
- Thyroid and immune function

### **5. NUTRITION**

- Diabetes, insulin deficiency and fuel homeostasis
- Fuel metabolism review and overview
- Hormones and nutrient metabolism
- Biological determinants of appetite regulation
- Glucose management and diabetes

### **6. PATHOLOGY**

- Pancreatic islets
- Neuroendocrinology - hypothalamus/pituitary
- Thyroid and parathyroid
- Adrenal
  - Cortex
  - Medulla

### **7. PHARMACOLOGY**

- Pancreatic islet hormones
- Neuroendocrinology and the hypothalamus/pituitary
- Thyroid replacement therapy
- Parathyroid dysfunction and calcium – phosphorus balance
- Adrenal
  - Dysfunction and therapeutics
  - Adrenal cortex and pharmacologic adjuncts
- Growth and development deficits and growth hormone
- Energy production and metabolism as affected by therapeutics

### **8. PHYSIOLOGY**

- Pancreatic islets and modulation of alpha, beta, and delta cells
- Neuroendocrinology - hypothalamus/pituitary
- Thyroid function – iodine, thyroglobulin, T3, T4, rT3, TBG

Academic Year: 2011-12

- Parathyroid modulation of bone homeostasis
- Adrenal modulation of corticosteroids and glucocorticoids
- Growth and development deficits and the role of growth hormone
- Energy production and metabolism in health and disease
- Adaptation to hostile environments
- Composition and volume of extracellular fluid

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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[Update, June 30, 2012]

<b>Clerkship title:</b>	Internal Medicine (Internal Medicine-Psychiatry Block)
<b>Sponsoring department or unit:</b>	Internal Medicine
<b>Name of clerkship director:</b>	Rafael Gonzalez-Ayala, MD (Harry Davis, MD to assume role in July 2012)

Internal Medicine and Psychiatry share a 16 week block during which students participate in educational and clinical activities for both disciplines. A number of shared topics have been identified and didactic sessions address both internal medicine and psychiatric issues (i.e. dementia, delirium, grief and dying, psychosomatic disorders, somatoform disorders, sleep disorders, substance abuse and psychiatric symptoms of medical and neurological illnesses). Internal medicine and psychiatry attendings round together with the students weekly. Of these 16 weeks, about 10 weeks are allotted to internal medicine activities.

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

The Internal Medicine component of this block consists of the following:

- Internal Medicine In-patient ward (8 weeks)
- Ambulatory Clinic (one-half day per week)
- Sub-specialty selective (2 weeks)

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The educational objectives of this clerkship were developed internally by members of the Department of Internal Medicine and with input from an interdisciplinary year 3-4 curriculum design team consisting of additional faculty from the Department of Medical Education, Department of Psychiatry, and the Office of Curriculum, Evaluation, and Accreditation. The objectives of the Internal Medicine component of the Internal Medicine/Psychiatry block are consistent with the learning goals and objectives developed by the Clerkship Directors in Internal Medicine (CDIM) to serve as guide for the development of clerkship experiences in internal medicine.

The 31 institutional learning objectives of the Paul L. Foster School of Medicine, which have been mapped on to the ACGME competency domains, served as a framework for organizing the objectives of

the internal medicine component of the block. The alpha-numeric code associated with the goals and objectives below refer to the institutional learning objectives described in Section II, ED-1, 1-A of the database. Specific learning objectives are included in the syllabus which is available for inspection on-site.

### **MEDICAL KNOWLEDGE**

The student will evaluate at least 1 patient from a list of 32 clinical presentations or diagnosis from the following organ systems or general areas (MK 3-4). Please see Section II ED-2 for a listing of required conditions.

- Cardiovascular
- Respiratory
- Renal/Genitourinary
- Infectious diseases
- Gastrointestinal
- Endocrine
- Hematology/Oncology
- Rheumatology
- Neurology
- General (e.g., fever, rash, substance abuse)

### **PATIENT CARE**

The student will:

1. Demonstrate the ability to perform and accurately record a complete history and physical examination on hospitalized and ambulatory patients and develop diagnosis and management skills. (PC 1, 2, 6)
2. Demonstrate efficient use of diagnostic testing, including the understanding of basic procedures commonly performed on the internal medicine wards, and displays the ability to provide information needed by the patient to provide informed consent for such procedures. (PC 5)
3. Maintain adequate written records on the progress of illnesses of each assigned patient and communicate effectively, both orally and in writing, with patients and their families. (PC3-4, ICS-2)

### **INTERPERSONAL AND COMMUNICATION SKILLS**

During the course of this clerkship the student will:

1. Demonstrate the ability to communicate effectively with both colleagues and patients, including discussing with the patient (and family as appropriate) ongoing health care needs, using appropriate language, and avoiding jargon and medical terminology. (ICS 1, 3)
2. Appropriately utilizes interpreters and communicates effectively with patients and families who speak another language, maintaining professional and appropriate personal interaction. (ICS 3)

### **PROFESSIONALISM/ETHICS**

Throughout this clerkship, the student will:

1. Demonstrates sensitivity and compassion to the diverse factors affecting patients and their health care beliefs and needs, including age, gender, sexual orientation, religion, culture, income and ethnicity. (PROF 2, 3, 5, 7)
2. Show respect for each patient's unique needs and background and how these factors affect the patient's concerns, values and health care decisions. (PROF 2)
3. Display demeanor, speech, and appearance consistent with professional and community standards.
4. Demonstrate dedication to the highest ethical standards governing physician-patient relationships, including privacy, confidentiality, and the fiduciary role of the physician and health care systems. (PROF 4, 6, 8, 9)

### **PRACTICE BASED LEARNING AND IMPROVEMENT**

The student will:

1. Demonstrate the ability to utilize varied methods of self-directed learning and information technology to acquire information in the basic and clinical sciences needed for patient care. (PBL 2, 3, 5)
2. Demonstrates continuous efforts to improve clinical knowledge and skills through effective use of available learning resources and self-directed learning. (PBL 7)
3. Accurately assesses the limits of his or her medical knowledge in relation to patients' problems, accepts feedback from the faculty, and applies feedback to improve clinical practice. (PBL 4)

### **SYSTEM BASED PRACTICE**

The student will:

1. Develop knowledge and understanding of the organization of health care delivery system and the professional, legal, and ethical expectations of physicians. (SBL 2)
2. Understand and utilize ancillary health services and sub-specialty consultants properly. (SBL 2)

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?***

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for clerkship experiences in internal medicine and they also reflect nearly 40 years of institutional experience providing clerkship experiences as a regional campus of TTUHSC Lubbock School of Medicine before the accreditation of the Paul L. Foster School of Medicine as an independent medical school.

The clerkship director is ultimately responsible for ensuring that student clinical experiences are appropriate for meeting clerkship objectives. Students record their patient encounters and the procedures they perform in an on-line electronic patient encounter log (OP-Log). The clerkship director reviews individual students' clinical experiences mid-way through the rotation. Every effort is made to provide students with "real patient" experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed. Based on student Op-log entries, a decision will be made within 7-10 days of the end of the clerkship about whether it will be necessary to assign an alternative method for meeting specific clinical expectations.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

**Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the Clerkship Director and provided copies of the syllabus and evaluation forms that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

In addition to the required Residents as Teacher program conducted by the Office of Graduate Medical Education, the Clerkship Director meets with residents who are supervising and evaluating students to review the goals, objectives, and organization of the clerkship and also to review the student assessment form that the residents are expected to complete on each of their students. Residents also have access to the clerkship syllabus.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

Currently, most students are assigned to either University Medical Center, our major affiliate, but two students per rotation are assigned to the internal medicine service at William Beaumont Army Medical Center at Fort Bliss in El Paso. The clerkship director meets with the faculty at each of these sites to review the goals and objectives of the clerkship and to review the assessment methods that all must employ in evaluating student performance.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Internal Medicine
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*Methods for Evaluating Clerk Performance*

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

The following methods are used to assess student knowledge, skills, attitudes, and behaviors:

- NBME Internal Medicine exam
- Student clinical assessment form, which includes a professionalism component, which is completed by faculty and residents supervising the student (see Section II Appendix x).
- Observed history and physical evaluation form
- Evaluation of 15 patient write-ups
- Review of on-line patient encounter log
- Evidence-Based Medicine Search
- End of block OSCE
- End of year 3 comprehensive OSCE

The Clerkship Director is responsible for ensuring that each of these assessment measures has been completed. All must be completed to record a student grade.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Faculty (salaried and volunteer) and residents who have sufficient contact with students to render a judgment on their performance are asked to complete the clinical assessment instrument. This information is reviewed by the clerkship director who then completes the final evaluation that is the basis for assigning a grade for the clerkship.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

PLFSOM is implementing its clerkship curriculum for the first time in the current academic year. National data is presented as a means of comparing PLFSOM students with a national benchmark.

<b>Year</b>	2011-12	National Average
<b>Score</b>	76.2	75.5

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

Yes	✓	No	
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Narrative comments are required on the end of unit assessment evaluation report on each student.

*Clerkship Outcomes/Evaluation*

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***Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.***

The faculty oversee student activities in three settings:

1. University Medical Center of El Paso by full-time Texas Tech University/Department of Internal Medicine faculty
2. William Beaumont Army Medical Center by full-time Texas Tech University/Paul L. Foster non-salaried (volunteer) faculty
3. Texas Tech Internal Medicine Outpatient Clinic by full-time Texas Tech University/Department of Internal Medicine faculty.

The number of faculty who contribute to teaching students during the clerkship is adequate at this point, but will be challenged by an increasing number of medical students in the coming academic years as we eventually expand to 100 per year. Additional faculty members are being recruited and the institution is developing new and expanded affiliations with private hospitals to meet this need. Feedback is gathered from medical students whether individual faculty members have been successful teachers and role models on the wards. These data is reviewed by the Clerkship Director, communicated to the Department Chairman. The patients are adequate in volume and scope necessary to meet the requirements of the clerkship.

***Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.***

At the end of each Block students are asked to complete on-line, anonymous evaluations on each of the clerkships in the block. (Please see results below.)



<b>Internal Medicine</b>				
Class of 2013 AY2011-2012 (Response rate = 95%)				
Offering Block	1	2	3	Overall
This block was well organized.	55%	75%	92%	75%
The learning objectives were clearly identified.	64%	67%	85%	72%
The block met the identified learning objectives	64%	67%	75%	69%
The amount of material presented during the block was reasonable.	91%	75%	54%	72%
Shared learning experiences between the two disciplines in this block contributed to my understanding of clinical medicine.	36%	75%	38%	50%
<i>Individual Clerkship</i>				
The methods used to evaluate my performance during this clerkship provided fair measures of my effort and learning.	45%	50%	38%	44%
In this clerkship, duty hour policies were adhered to strictly.	55%	67%	46%	56%
I had appropriate exposure to ambulatory patients.	82%	67%	62%	69%
I had enough patient management opportunities.	73%	83%	100%	86%
I received sufficient supervision during my clinical interactions.	100%	67%	77%	81%
I received sufficient feedback on my performance.	82%	75%	65%	74%
The clinical presentation schemes helped me organize my approach to patient care.	36%	58%	54%	50%
The clerkship provided appropriate preparation for the shelf exam.	36%	67%	69%	58%
I was observed delivering patient care.	100%	75%	100%	92%
Overall, I learned useful knowledge and/or skills during this clerkship.	100%	83%	92%	92%

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

- Students provided with a wide variety of patient/clinical experiences.
- Students performing well on NBME Shelf-exam and on faculty assessments of clinical skills.
- Shared learning experiences with psychiatry (e.g., joint rounds, psychiatric conditions presenting as medical illnesses, substance abuse, etc.) are exposing students to the relevance of each discipline for patient care. We will build on this and expand integrated learning experiences in the future.

*Challenges:*

- Expanding class size and fourth year sub-I and MICU rotations will increase the number of learners per ward team. However, patient volume is sufficient to ensure that students will have the patient contacts needed to meet clerkship goals and objectives. We will explore scheduling modifications to maximize students' patient care experiences if necessary. We are also negotiating additional affiliations in the community for future growth and expansion.
- The "clinical schemes" from years 1-2 have not been consistently employed in teaching and learning. To promote better vertical integration, beginning with block 3, we have been requiring

Academic Year: 2011-12

students to demonstrate the application of appropriate schemes on required H and P write-ups/presentations.

- We will continue to work on improving the frequency and educational value of joint learning experiences between internal medicine and psychiatry. There are many opportunities for demonstrating the mutual relevance of each discipline.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Psychiatry (Internal Medicine and Psychiatry Block)
<b>Sponsoring department or unit:</b>	Psychiatry
<b>Name of clerkship director:</b>	Dan Blunk, MD

Psychiatry and Internal Medicine share a 16 week block during which students participate in educational and clinical activities for both disciplines. A number of shared topics have been identified and didactic sessions address both internal medicine and psychiatric issues (e.g., dementia, delirium, grief and dying, psychosomatic disorders, somatoform disorders, sleep disorders, substance abuse and psychiatric symptoms of medical and neurological illnesses). Internal medicine and psychiatry attendings round together with the students frequently. Of these 16 weeks, about 6 weeks are allotted to the psychiatry clerkship activities. In addition to these 6 weeks in psychiatry, students are assigned to a longitudinal selective experience one-half day per week for 15 weeks.

### Rotations

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*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

The Psychiatry component of this block consists of the following:

- In-patient Psychiatry = 2 weeks
- Out-patient Psychiatry = 4 weeks

In addition to these rotations, students will participate in a 15, half-day per week selective experience. Possible selective experiences include:

- Consultation-liaison psychiatry (medical/surgical, pediatrics, or emergency department)
- Sleep medicine
- Child-Adolescent Clinic
- Psychotherapy
- Clinical research
- Child Guidance Center
- Psychiatric Emergency Service
- Psychiatry Walk-In Clinic at Alternatives Behavioral Health
- Neurology Clinic

### Clerkship Objectives

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*Are there written objectives for the clerkship?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The goals and objectives of this clerkship were developed internally but are consistent with those adopted by the Association of Directors of Medical Student Education in Psychiatry. The goals and objectives of this clerkship are also influenced by institutional expectation that students will be given the opportunity to revisit the Clinical Presentations (CPs) that were addressed during the first two years of the curriculum, with a greater emphasis on evidenced-based treatment. Further, faculty members in psychiatry and internal medicine have identified a number of “shared” topics for integrative teaching and learning. The psychiatric seminars that will have participation of both faculty members from Psychiatry and Internal Medicine include the following topics: conditions which mimic physical disease; somatoform disorder cases; delirium, amnesic and other cognitive disorders; dementia; grief and dying; psychiatric presentation of neurological disease; psychiatric presentation of medical disease; and psychosomatics. The Internal Medicine seminars in which psychiatrists also participate include infectious disease (HIV), endocrine (diabetes and thyroid diseases), rheumatology (connective tissue diseases), geriatrics, and gastroenterology lectures.

Clerkship goals are organized by ACGME competency domains (alpha-numeric code refers to Paul L. Foster School of Medicine institutional learning objectives listed in Section II ED-1, 1-A):

**MEDICAL KNOWLEDGE**

**Objectives (MK-1-4, PC 1, 2, PBL 1-6):**

1. The student should recognize common psychiatric disorders seen in a variety of settings, ranging from the chronically, mentally ill to ambulatory patients. The conditions the student will be asked to evaluate and help manage include the following:
  - a. Schizophrenia and other psychotic disorders
  - b. Anxiety Disorders
  - c. Cognitive Disorders
  - d. Depressive Disorders
  - e. Mania/Hypomania
  - f. Personality Disorders
2. The student will have exposure to emergency psychiatry and will be asked to participate in risk assessments. The student should have knowledge about the following:
  - a. Suicidal/homicidal patient
  - b. Crisis intervention
  - c. Treatment methods in emergency situations
3. The student should be able to recognize common psychiatric disorders seen in children and adolescent patients, including conditions not previously listed such as pervasive developmental disorders and disruptive behavior disorders.

4. The student will work to become proficient in doing a complete psychiatric evaluation, mental status exam, biopsychosocial formulations, and laboratory methods used in psychiatry.
5. The student will work to become proficient in developing a treatment plan, including appropriate suggestions for pharmacotherapy and/or psychotherapies.
6. The student will also have exposure to forensic psychiatry and psychiatric syndromes associated with medical illnesses.

## **PATIENT CARE**

### **Objectives:**

1. The student will work to become proficient in doing a complete psychiatric evaluation, including a present and past psychiatric history, developmental history, family history, educational history, sociocultural history, substance abuse history, medical history, and a mental status exam. (PC- 1, 3-6; ICS- 2)
2. Based on a complete psychiatric evaluation, the student needs to develop and document a DSM multiaxial diagnosis, an evaluation plan for appropriate laboratory and medical examination, and a treatment plan derived from the biopsychosocial formulation. (PC- 1, 5)
3. The student will need to assess and document the patient's potential for self-harm, harm to others, and appropriate interventions. (PC- 2)

## **INTERPERSONAL AND COMMUNICATION SKILLS**

### **Objectives:**

1. The student will strive to develop the interpersonal skills which will facilitate an effective therapeutic relationship with culturally diverse patients, and their families. (ICS-1)
2. The student will be expected to work on interpersonal skills that reflect an underlying attitude of respect for others, the desire to gain understanding of another's position and reasoning, a belief in the intrinsic worth of all human beings, the wish to build collaboration, and the desire to share information in a consultative, rather than a dogmatic, fashion. (ICS-1)
3. The student will be expected to work on their ability to (ICS-1-3):
  - Listen to and understand patients and their families
  - Communicate effectively with patients and their families, using verbal, nonverbal, and writing skills as appropriate.
  - Foster a therapeutic alliance with their patients, as indicated by the patient's feelings of trust, openness, rapport, and comfort in the relationship with the student.
  - Transmit information to patients and families in a clear meaningful manner.
  - Educate patients and their families about medical, psychological and behavioral issues.
  - Appropriately utilize interpreters and communicate effectively with patients and families who speak another language.

- Communicate effectively and respectfully with physicians and other health professionals in order to share knowledge and discuss management of patients.

### **PROFESSIONALISM/ETHICS**

#### **Objectives:**

1. The student will demonstrate respect, compassion and integrity (Prof-3, 7).
  - A responsiveness to the needs of patients and society that supersedes self-interest (Prof-2, 9).
  - Accountability to patients, society, and the profession (Prof-2, 4, 6).
  - A commitment to excellence and ongoing professional development (PBL-3, 5, 7).
2. The student will demonstrate a commitment to ethical principles pertaining to the provision or withholding of clinical care (Prof-1).
  - The student will attend a discussion seminar on the ethics in psychiatry.
  - The importance of confidentiality of patient information and informed consent shall be stressed to the student.
3. It is expected that the student will develop a sensitivity and responsiveness to the patient's culture, age, gender and disabilities (Prof-3, 7, 8).

### **PRACTICE-BASED LEARNING AND IMPROVEMENT**

#### **Objectives:**

1. The student will be expected to develop a well-rounded knowledge of the delineated psychiatric disorders and the various treatment modalities.
2. The student should be exposed to an environment that will promote the student's ability to recognize and accept limitations in one's knowledge base and clinical skills (PBL-4).
3. The student will be exposed to an environment which will stress the development of a mindset that will allow the student to accept the absolute need for lifelong learning (PBL-3, 7).
4. The students will maintain a log of the cases they have seen so the clerkship director can be certain the student is getting the necessary exposure to a variety of psychiatric conditions. This is essential to develop the necessary clinical skills and knowledge base in psychiatry. The student will also have appropriate supervision while developing their caseload.
5. The students will be expected to review and critically assess the scientific literature in order to promote a higher quality of care (PBL-2, 5).

### **SYSTEMS-BASED PRACTICE**

The students of Paul L. Foster School of Medicine have the unique opportunity to observe and learn different systems interacting to provide for the care of patients. The students, in a combined block with Internal Medicine and Psychiatry, will have models of this interaction throughout their learning experience in their third year. The students will also be exposed to how healthcare professionals, (psychiatrists, psychologists, social workers, licensed professional counselors and nurses) interact in psychiatry to provide for the optimal treatment of a patient (SB-1, 2).

**Objectives:**

1. Internal Medicine and Psychiatry will have one half day designated for didactic sessions. Many of these will be shared topics to both specialties. (i.e. dementia, delirium, grief and dying, psychosomatic disorders, somatoform disorders, sleep disorders, and psychiatric symptoms of medical and neurological illnesses). This will allow the students to see the interaction of these two specialties.
2. Efforts will be made to have the students exposed to a wide variety of systems that treat psychiatric patients. This will be inpatient experience for the chronically mentally ill, day hospital and ambulatory clinics for less severely ill patients. This will allow for discussion of the level of care that has proven effectiveness but may be more cost effective. Hopefully, through this exposure, the student can appreciate the impact of managed care.
3. Part of the requirement in our day hospital setting and inpatient hospital experience is to have students participate in the treatment team of their supervising psychiatric physician. This will allow the student to better understand how various mental health professionals interact to meet the emotional needs of a patient.
4. Part of the students' experience will also be participation in groups or individual therapy sessions with other mental health professionals besides psychiatrists. This will help the student understand how the exposure of the various mental health professions dovetails to meet the needs of a psychiatric patient.
5. El Paso offers a unique experience to understand how the various systems have been developed to meet the needs of diverse cultures. Most of the hospital/day hospital programs available in El Paso are bicultural and have access to bilingual mental health professionals. This unique experience will allow our students to fully appreciate culturally diverse systems and how they meet the needs of our culturally diverse population.

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?***

The educational committee of the Department of Psychiatry at Texas Tech University – Paul L. Foster School of Medicine has set the kinds of patients, clinical conditions and the clinical settings for the experiences to meet the clerkship objectives. The Education Committee is composed of the chairman of the department of psychiatry, the clerkship director, the associate chair for clinic operations, the assistant clerkship director, and the clerkship coordinator. This committee meets frequently. In addition, the clerkship directors of psychiatry and internal medicine with their clerkship coordinators meet on a bimonthly basis to coordinate activities within the IM/Psych block. Prior to the creation of the Paul L. Foster School of Medicine, TTUHSC-El Paso was a regional clinical campus of the School of Medicine in Lubbock for nearly 40 years. Consequently, the institution and its faculty have considerable experience in the design and delivery of clerkship education for medical students. The types of patients, clinical conditions, and settings of care are consistent with the goals and objectives of the clerkship, and with the integrated learning goals of the block which psychiatry and medicine share. Finally, the selection of patient types is also influenced by the institutional goal of revisiting the diagnostic clinical presentation schemes employed in the first two years of the curriculum. These clinical presentations are listed along with the psychiatric diagnoses students are expected to encounter in Section II ED-2.

Students record their patient encounters in the on-line electronic patient encounter log system (OP-log). The clerkship director reviews each student's Op-log entries at the mid-way point and end of the rotation. Every effort is made to provide students with "real patient" experiences. If this is not possible, the

clerkship director will assign appropriate case from Case Files in Psychiatry. Thus far it has not been necessary to employ alternative methods for meeting clerkship clinical goals and objectives.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The clerkship director is responsible to make certain that each student's clinical experiences are appropriate to meet the objectives of the clerkship. Before the midterm evaluation, the clerkship director will review the evaluations for each student and discuss these with the student. This will allow plenty of time to correct any deficiencies in the patient log, knowledge base, clinical skills, professionalism, etc. If there are any deficiencies identified a corrective action plan will be presented to the student. The clerkship director will then continue to monitor the student's progress to see if effective changes have been implemented.

### **Preparation for Teaching**

Attending faculty and residents (see below) are oriented to the experience by the clerkship director and provided copies of the syllabus and evaluation forms that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. In addition to this each of the residents are given a copy of *A Handbook for Medical Teachers*. The clerkship director also discusses the curriculum and the clinical assessment forms at the annual resident's retreat.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

Faculty members receive a copy of the syllabus with the goals and objectives for the clerkship and the institution (as documented in Section II ED-2 of the database). Clerkship related issues can be raised at the bi-monthly meeting of department faculty. The clerkship director orients volunteer faculty members who provide students with longitudinal experiences in the community. He is also in frequent contact with these faculty members throughout the Block.



**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Psychiatry
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*Methods for Evaluating Clerk Performance*

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

The following methods are used to assess students' knowledge, skills, and attitudes:

- NBME Psychiatry examination
- Student Clerkship Assessment form (including professionalism component) completed by faculty and residents.
- End of block OSCE
- Students also complete several formative quizzes developed by the clerkship director to help them assess their mastery of concepts in psychiatry. The quizzes do not factor into the final grade of the student. It is designed to assist the students' understanding of the reading assignments and to have exposure to how questions are formulated over various topics. It does help the clerkship director to assess the students' progress in expanding their knowledge base. If there are problems in this regard, this is discussed with the student at their mid-rotation evaluation.
- End of Year 3 comprehensive OSCE.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Supervising faculty (paid and volunteer) and residents complete assessment forms on the students with whom they have sufficient contact. The clerkship director is responsible for assembling the ratings from faculty and residents and formulating the final performance grade.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

PLFSOM is implementing its clerkships for the first time in the 2011-12 AY. Only one year's data is available. National averages are provided as a benchmark.

<b>Year</b>	2011-12	National Average
<b>Score</b>	80.8	78.7

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Narratives are required components of the student assessment system.

Clerkship Outcomes/Evaluation

*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

We are well staffed to meet the needs of the students from Paul L. Foster School of Medicine. The Department of Psychiatry is currently composed of six full-time faculty, a full-time psychologist, two part-time faculty, three full-time clinical faculty that are employed by the El Paso Psychiatric Center, eight volunteer clinical faculty that work in the private sector, and 12-14 resident physicians. For students interested in neurology, a longitudinal selective is available with two full time neurologists at TTUHSC-PLFSOM and one volunteer clinical neurologist in the private sector. The Center of Excellence in Neurosciences has four full time faculty and one half time faculty to help students who are interested in research in the neurosciences. The chairman is currently recruiting another child-adolescent psychiatrist and psychologist. El Paso also has an abundance of psychiatric patients and facilities to treat these patients.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

At the end of each block, students complete an anonymous on-line evaluation of the two clerkships they participated in during that block.

<b>Psychiatry</b>				
Class of 2013 AY2011-2012 (Response rate = 95%)				
Offering Block	1	2	3	Overall
This block was well organized.	55%	75%	92%	75%
The learning objectives were clearly identified.	64%	67%	85%	72%
The block met the identified learning objectives	64%	67%	75%	69%
The amount of material presented during the block was reasonable.	91%	75%	54%	72%
Shared learning experiences between the two disciplines in this block contributed to my understanding of clinical medicine.	36%	75%	38%	50%
<i>Individual Clerkship</i>				
The methods used to evaluate my performance during this clerkship provided fair measures of my effort and learning.	100%	92%	100%	97%
In this clerkship, duty hour policies were adhered to strictly.	100%	92%	100%	97%
I had appropriate exposure to ambulatory patients.	91%	100%	100%	97%
I had enough patient management opportunities.	82%	100%	100%	94%
I received sufficient supervision during my clinical interactions.	90%	100%	100%	97%
I received sufficient feedback on my performance.	100%	100%	100%	100%
The clinical presentation schemes helped me organize my approach to patient care.	73%	75%	85%	78%
The clerkship provided appropriate preparation for the shelf exam.	90%	92%	100%	94%
I was observed delivering patient care.	90%	92%	100%	94%
Overall, I learned useful knowledge and/or skills during this clerkship.	100%	100%	100%	100%

*Identify major successes in the clerkship and challenges to be overcome*

*Successes:*

- We have achieved a high level of integration of psychiatric topics and internal medicine topics in this “shared” block.
- The Psychiatry clerkship contributes to the vertical integration of the curriculum through its continuing utilization of the clinical presentation “schemes” that served as a major pedagogical tool in the first two years of the educational program.
- Students uniformly give this clerkship very high marks for the quality of the learning experience and the effectiveness of the clerkship director.
- Student performance on the NBME psychiatry shelf examination is very good.
- Consistent with integration of the IM/Psych block, each student has been exposed to this interface through participation in the consultation liaison (C-L) service. The director of the C-L service has been tremendous assets in having the students better understand this interface. His evaluations by the students have been outstanding and his longitudinal selectives have always been the first selected.
- Having students develop study notes over various topics from their mandatory reading assignments has allowed the students to be more involved with the psychiatry clerkship and function as teachers for their classmates. This involvement has contributed to better scores on the NBME.
- The use of questions from the Psychiatric Residents In Training Exams (PRITE) has allowed the students to better understand psychiatric disorders and treatment. This has also had an impact on improved NBME scores in psychiatry.
- An associate Chair for Clinical Service has been recruited to actively expand the outpatient clinic to better provide quality experiences for our students.

*Challenges:*

- As the number of students increases each year at PLFSOM, it will be more challenging to find sufficient longitudinal selectives for our students. The Department of Psychiatry continues to actively recruit additional faculty. Another possible solution to meet this need would be to have the longitudinal selectives be every other week until sufficient faculty have been recruited.
- Finding adequate time for students to do their assigned psychiatry reading while rotating in the inpatient IM services in our shared block system. This is being addressed with the IM clerkship director and we are actively working to find a solution.
- We were disappointed that students did not rate the opportunities for shared learning between internal medicine and psychiatry more highly. One of our goals for the next academic year is to improve this component of the clerkship. The clerkship directors are meeting to identify opportunities for joint learning experiences that will enhance both internal medicine and psychiatry.

***PART C. REQUIRED CLERKSHIP FORM*** [Updated 6-30-12]

<b>Clerkship title:</b>	Obstetrics and Gynecology (OB-GYN and Pediatrics Block)
<b>Sponsoring department or unit:</b>	Obstetrics and Gynecology
<b>Name of clerkship director:</b>	Heidi Lyn, MD

**Rotations**

OB-GYN is taught together with Pediatrics in a combined 16 week block. The OB-GYN portion adds up to 8 weeks. Some topics that will be addressed during the OB-GYN/Pediatrics blocks have been identified as “shared topics” (e.g., adolescent OB-GYN, STDs, prematurity) and will be covered through integrative lectures, workshops, seminars, case conferences, or shared rounds with all students in the block regardless of student's specific rotation assignment in the block.

***List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).***

- Labor and Delivery (2 weeks)
- Comprehensive OB Service (1 week)
- Out-patient OB-GYN (1week)
- Gynecologic Oncology Service (1 week)
- Breast clinic (1 week)
- Benign Gynecology service (2 weeks)

**Clerkship Objectives**

***Are there written objectives for the clerkship?***

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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***Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?***

The objectives for this clerkship were developed internally based the objectives enumerated in the clerkship guide prepared by the Association of Professors of Gynecology and Obstetrics. Clerkship objectives also reflect institutional expectations to revisit and review relevant clinical presentations (CPs) addressed during the first two years of the curriculum as part of the Scientific Principles of Medicine and Medical Skills courses. The CPs associated with OB-GYN are listed in the OB-GYN section of ED-2 in Section II of the database.

The following objectives, organized by ACGME Competency domains are addressed in this clerkship (the codes following the entries below corresponds with the institutional learning objectives of the Paul L. Foster School of Medicine as recorded in Section II ED1, 1-A of the 2012 database.).

### **MEDICAL KNOWLEDGE**

By the end of this clerkship experience students will be able to:

- Provide evidence based, age appropriate preventive and health maintenance care (MK-3)
- Recognize the signs, symptoms, and physical findings associated with commonly occurring conditions (MK-1, 2, 4; PC-4, 6, PBL-1, 6).

### **PATIENT CARE**

By the end of this clerkship experience, students will demonstrate the ability to:

- Obtain a competent clinical data base on obstetrical and gynecological patients, and perform a competent pelvic exam in the gravid and non-gravid patient.(PC-4)
- Develop knowledge and proficiency in the provision of ambulatory care to the uncomplicated pregnant patient, and manage common conditions and complications associated with pregnancy.(PC-6)
- Develop competency at the level of the MS III in the management of uncomplicated labor and delivery, and recognition of the indications for operative obstetrical intervention.(PC-2)
- Develop appreciation for the proficient management of high risk pregnancies and for the management of complications of labor and delivery. (PC-1)
- Develop proficiency at the level of the MS III in the management of ambulatory gynecological patient presentations. (PC-3)
- Perform or assist in the performance of Pap smears, wet prep and KOH preps, pelvic exams, deliveries and ultrasounds.(PC-3)
- Utilize diagnostic testing and imaging resources effectively and efficiently. (PC-5)

### **INTERPERSONAL AND COMMUNCATON SKILLS**

Throughout this clerkship students will demonstrate the ability to:

- Communicate effectively with patients and their families. (ICS-1)
- Appropriately utilize interpreters if necessary to communicate with patients with limited English language proficiency. (ICS-1, 2, PROF-7)
- Communicate effectively and respectfully with physicians, and other health professionals in order to share knowledge and discuss management of patients. (ICS-1,3)
- Maintain professional and appropriate personal interaction with patients. (PROF-3.5)
- Use effective listening, verbal and writing skill to communicate with patients and member of the health care team. (ICS-1,2,3)

### **PROFESSIONALISM/ETHICS**

Throughout this clerkship, students will demonstrate a commitment to:

- Being sensitive to patient and family concerns (PROF-3, 5, 7).
- Maintaining confidentiality and respecting patient privacy (PROF1, 8).
- Managing personal biases in caring for patients of diverse populations and different backgrounds and recognizing how biases may affect care and decision-making (PROF1, 2, 4, 5, 7).

Academic Year: 2011-12

- Meeting professional obligations and the timely completion of assignments and responsibilities (PROF -6).
- Advocate for patient needs (PROF-9).

### **PRACTICE BASED LEARNING AND IMPROVEMENT**

During this clerkship experience, the student will:

- Demonstrate the use electronic technology (e.g., PDA, PC, internet) for accessing and evaluating Evidenced-Based medical information (e-medicine, journals AAFP, NEJM, American Journal of Obstetrics and Gynecology, etc) (PBL-5).
- Accept feedback from the faculty and incorporate this to improve clinical practice (PBL-4).

### **SYSTEM BASED PRACTICE**

During this clerkship experience, the student will demonstrate the ability to:

- Utilize ancillary health services and specialty consultants properly (SBP-2).

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for a clerkship experience in OB-GYN and also reflect more than 30 years of institutional experience providing clerkship education as a regional campus of TTUHSC Lubbock School of Medicine prior to our independent accreditation as a 4-year medical school.

Students record their patient encounters and the procedures they perform in the on-line electronic patient encounter log (Op-log). The clerkship coordinator reviews Op-log entries weekly. If there is a deficiency, based on the experiences a student should have given the specific rotation the student is on, she notifies the clerkship director who then intervenes by modifying the student assignment or by selecting an appropriate alternative. Every effort is made to provide students with "real patient" experiences. If this is not possible, alternatives in the form of directed readings, computerized cases, high fidelity simulation, and/or standardized patient encounters is employed

*Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.*

The clerkship director is responsible for reviewing student progress and performance in achieving required clerkship objectives. The clerkship director reviews each student's OP-Log patient encounter entries and all available evaluations on completion of the first month of the OB-GYN portion of the clerkship block. If a student is not meeting clinical expectations, the clerkship director will modify the student's schedule or arrange an alternative method of meeting an objective as discussed above.

Departmental faculty and residents report to the clerkship director on the student's progress throughout the rotation. If deficiencies are noted, the clerkship director is responsible for addressing those issues with the student immediately. The clerkship director outlines the steps necessary for achieving satisfactory

Academic Year: 2011-12

student progress. The clerkship director conducts a formal mid-rotation evaluation to assess the progress of each student.

**Preparation for Teaching**

Attending faculty are updated monthly on clerkship status. Faculty input is solicited. Each attending is responsible for one formal didactic session. Materials for preparation are provided to them.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents are required to participate in a “Residents as Teachers” program administered by the Office of Graduate Medical Education. In addition, the clerkship director also meets with residents who will be supervising students to review the goals, objectives, and assessment criteria of the clerkship. Residents will have access to the syllabus.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.



**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Obstetrics and Gynecology
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**Methods for Evaluating Clerk Performance**

*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Immediate verbal feedback is given. Written evaluations are collected weekly. In addition, the students are tested on suturing and performance of a pelvic exam. They are given immediate verbal feedback and written evaluation. The clerkship director reviews student activity and OP-log to determine adequacy of exposure. Clerkship director also oversees collection of clinical evaluation.

(Note: if OP-log criteria are not met: the student may be assigned simulation or reading to cover the deficit. Some experiences (such as vaginal delivery) cannot be simulated, and the student's schedule is adjusted to provide this experience.)

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Faculty members and residents who have sufficient contact with students to observe and assess their performance are asked to complete clinical assessments using forms designed by the school and department. The clerkship director reviews this information and provides the final summative assessment and assigns the final grade.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

As a new medical school this information is available for only the 2011-12 AY. National data provided by the USMLE is included below to provide a national benchmark for comparison.

<b>Year</b>	2011-12	National Average
<b>Score</b>	74.9	74.4

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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All students are provided with narrative comments as part of the clerkship grade.

**Clerkship Outcomes/Evaluation**

*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Patient volume is more than adequate to provide students with the clinical experiences necessary to gain an appreciation of the scope of practice of OB-GYN and familiarity with commonly encountered health conditions affecting women. The number of faculty is sufficient and the department is currently recruiting additional faculty that will expand the pool of available teachers.



*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

At the end of each block, students complete anonymous on-line evaluations of their experience for each of the clerkships sharing the block.

<b>Obstetrics &amp; Gynecology</b>				
Class of 2013 AY2011-2012 (Response rate= 95%)				
Shared Block	1	2	3	Overall
This block was well organized.	64%	64%	55%	61%
The learning objectives were clearly identified.	64%	45%	64%	58%
The block met the identified learning objectives	64%	73%	70%	69%
The amount of material presented during the block was reasonable.	73%	55%	91%	73%
Shared learning experiences between the two disciplines in this block contributed to my understanding of clinical medicine.	36%	27%	55%	39%
<i>Individual Clerkship</i>				
The methods used to evaluate my performance during this clerkship provided fair measures of my effort and learning.	55%	45%	90%	<b>63%</b>
In this clerkship, duty hour policies were adhered to strictly.	73%	55%	91%	<b>73%</b>
I had appropriate exposure to ambulatory patients.	100%	82%	100%	<b>94%</b>
I had enough patient management opportunities.	91%	64%	100%	<b>85%</b>
I received sufficient supervision during my clinical interactions.	100%	82%	90%	<b>91%</b>
I received sufficient feedback on my performance.	55%	41%	91%	<b>62%</b>
The clinical presentation schemes helped me organize my approach to patient care.	45%	36%	82%	<b>55%</b>
The clerkship provided appropriate preparation for the shelf exam.	82%	73%	82%	<b>79%</b>
I was observed delivering patient care.	100%	100%	100%	<b>100%</b>
Overall, I learned useful knowledge and/or skills during this clerkship.	100%	82%	100%	<b>94%</b>

*Identify major successes in the clerkship and challenges to be overcome.*

***Successes:***

- Students exposed to a diversity of clinical skills.
- Faculty teaching and didactics are well-received.

***Challenges:***

- Locating suitable patients for the longitudinal patient experience has been a challenge. The clerkship director is enlisting other members of the faculty to help locate patients suitable for this experience.
- Students do not always recognize when faculty are providing them feedback. As part of the orientation to the clerkship for faculty and residents, the clerkship director is devoting more attention to feedback skills. She is also encouraging faculty and residents to preface their

feedback with an explicit statement to the effect: “I would like to give you some feedback on...”  
It is encouraging that over 90% of the students in Block 3 agreed that they had received sufficient feedback. We will continue to monitor and encourage faculty and residents to provide transparent feedback.

- Residents and some faculty are not familiar with the clinical presentation schemes used in years 1-2. The clerkship director will highlight the role of the schemes in clerkship education and assist faculty and residents in incorporating appropriate schemes in didactic presentations and in a series of pelvic examination simulation exercises.
- The “shared” learning experiences were not particularly well received. The clerkship directors in OB-GYN and Pediatrics have proposed enhancements in this integrated clerkship block to highlight areas within each discipline that compliments the other. These enhancements have been approved by the CEPC and will be implemented in the 2012-13 academic year.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	PEDIATRICS (OB-GYN-PEDIATRICS Block)
<b>Sponsoring department or unit:</b>	Department of Pediatrics
<b>Name of clerkship director:</b>	Marie Logvinoff, MD/Lynn Hernan, MD

PEDIATRICS is taught together with Obstetrics and Gynecology in a combined 16 week block. Each discipline has the equivalent of 8 weeks of student contact time. Some topics that are addressed during the OB-GYN/PEDIATRICS blocks have been identified as “shared topics” (e.g., adolescent OB-GYN, STDs, prematurity) and are covered through integrative lectures, workshops, seminars, case conferences, or shared rounds with all students in the block regardless of student's specific rotation assignment in the block.

### Rotations

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

The pediatrics component of the integrated Pediatrics/OB-GYN rotation occurs in the following settings:

- Newborn and intermediate care nursery (1 week)
- Ambulatory Pediatrics (4 weeks-- 2 weeks general pediatrics, 2 weeks subspecialty pediatrics )
- In-patient service (2 weeks-- 1 week on days, 1 week on nights)
- Individualized Learning Program (1 week)

### Clerkship Objectives

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The objectives for the PEDIATRICS clerkship component of the OB-GYN/PEDIATRICS Block are based on the APA/COMSEP (Council on Medical Student Education in Pediatrics) General Pediatric Clerkship Curriculum. These objectives are organized by ACGME competency domains and also reflect the Institutional Learning Objectives documented in Section II ED-1-A of this database. The following objectives have been developed for the PEDIATRICS clerkship. These objectives are linked to the PLFSOM Institutional Learning Objectives (see codes associated with each set of objectives).

### MEDICAL KNOWLEDGE

**Objectives:** Recognize the signs, symptoms, physical findings of common pediatric problems including the following (PLFSOM Institutional Learning Objectives: MK-1, 2, 3, 4):

- Health Supervision
- Growth

Academic Year: 2011-12

- Development
- Behavior
- Nutrition
- Prevention
- Issue unique to adolescence
- Issue unique to newborn
- Medical genetics and dysmorphology
- Common acute pediatric illness/common pediatric complaints
- Common chronic illness and disability
- Therapeutics
- Fluids and electrolytes management
- Pediatric emergencies
- Child Abuse

### **PATIENT CARE**

By the completion of this clerkship experience, students will be able to:

- Determine which patients can be managed in a general inpatient setting and which require higher levels of care and expertise in a critical care unit (PC-2).
- Demonstrate skills at the MS III level in evaluating, diagnosing, managing, and determining the appropriate disposition of pediatric patients (PC-1, PBL-1, 6)
- Develop differential diagnoses, planning diagnostic studies, formulate and implement therapeutic options and plans for discharge of patients under the student's care (PC-6).
- Utilize appropriate consultants/subspecialists. (PBL 3, 4)
- Utilize diagnostic testing and imaging resources effectively and efficiently (PC-5).

### **INTERPERSONAL AND COMMUNICATON SKILLS**

Students will demonstrate the ability to:

- Communicate effectively with families and patients (ICS-1).
- Interview adolescent patients in an effective manner (ICS-1, PROF-7).
- Appropriately utilize interpreters, if necessary, to communicate with non-English speaking patients (ICS-1).
- Communicate effectively and respectfully with physicians and other health professionals in order to share knowledge and discuss management of patients (ICS-3)
- Maintain professional and appropriate personal interaction with patients (ICS-1, 3).
- Use effective listening, verbal and writing skill to communicate with patients, families, and member of the health care team (ICS-1, 2).

### **PROFESSIONALISM/ETHICS**

During this clerkship, students will demonstrate:

- Sensitivity to patient and family concerns (PROF-3, 5, 7).
- Tolerance for parent and patient differences in culture, beliefs, attitudes, and lifestyle (PROF -7)
- The ability to manage personal biases in caring for patients of diverse populations and different backgrounds and to recognize how these biases may affect care and decision-making (PROF- 3, PBL-7).
- Respect for patient privacy and confidentiality (PROF -1, 5).
- Commitment to following through with professional obligations and the timely completion of assigned tasks and duties (PROF -6).
- Commitment to treat faculty, residents, staff, and fellow students with respect and courtesy (PROF-5).
- Advocate for patient needs (PROF -9).
- Demonstrate professionalism by dressing appropriately, being punctual for rounds, completing assigned tasks on time and showing respect for all members of health care team.

### **PRACTICE BASED LEARNING AND IMPROVEMENT**

During this clerkship experience, the student will:

- Demonstrate the use of electronic technology (e.g., PDA, PC, internet) for accessing and evaluating evidenced-based medical information (e-medicine, journals AAP, NEJM, PEDIATRICS, etc) (PBL-3, 5).
- Know how to access recommended guidelines for “best practice” in each area of Pediatrics.
- Accept feedback from the faculty and incorporate this to improve his or her clinical practice (PBL-4).

### **SYSTEM BASED PRACTICE**

During this clerkship experience, the student will demonstrate the ability to:

- Utilize ancillary health services and specialty consultants properly (SBL-2).
- Understand medical expenses coverage including Medicaid, Chipp, private insurance or no coverage and recognize the implications of type of coverage in the management of children. (SBL-2)
- Identify barriers to effective care and initiate QI process. (SBL-2)

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. The clerkship uses the template of the Council on Medical Student Education in Pediatrics (COMSEP) clinical encounter table to identify the types of patients and core conditions students should see and to determine the clinical settings (ambulatory, inpatient or acute care) that are most appropriate for encountering patients with these conditions.

Students record their patient encounters and the procedures they perform in an on-line electronic patient encounter log (OP-log). The faculty and the senior resident, on a daily basis are aware of the specific patient assigned to the student and are making a conscious effort to direct additional patients to the students based on the requirements of the clerkship. The clerkship director reviews individual students' clinical experiences at the mid-way point and end of the rotation to discuss the rotation experience. If a student is not meeting clinical objectives, the clerkship director will take appropriate steps to assure satisfactory completion. This may involve discussions with the faculty and residents supervising the student, making adjustments to the schedule, or assigning the student an alternative means of meeting the objectives (e.g., Computer-Assisted Learning in Pediatrics Program cases—see <[www.clippcasses.org](http://www.clippcasses.org)>).

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The clerkship director is ultimately responsible for ensuring that each student's clinical experiences are appropriate to meet clerkship objectives. Each morning the faculty or senior resident reviews the patients and makes assignments based on the types of patients encountered in previous days to maximize student exposure and to maximize the opportunity to meet clinical expectations. Virtual (on line) or simulated patients can be used at the end of rotation if necessary to meet unmet objectives. The decision to use an alternative is made in the final 7-10 days of the rotation.

### **Preparation for Teaching**

Attending faculty and residents (see below) are oriented to the experience by the clerkship director and provided copies of the syllabus and evaluation forms that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. In addition, the clerkship director meets with residents who have teaching responsibilities to review goals, objectives, expectations, and methods and criteria for assessing student performance. Residents also have access to the syllabus for the block and the clerkship. Well defined expectations/ guidelines are communicated to the teaching resident in each area of Pediatrics (nursery, clinic, wards). All students evaluate the teaching resident at the completion of a two week block.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this experience occurs at two sites, El Paso Children's Hospital and the Texas Tech Health Sciences Center – Outpatient Clinic.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Pediatrics
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**Methods for Evaluating Clerk Performance**

*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

**CLINICAL EVALUATIONS**

On-going written evaluations (clinical performance and professionalism) of each student are solicited from all faculty and residents who have had sufficient contact with the student at least once every 2 – 3 weeks. Standard evaluation forms developed by Paul L Foster School of Medicine are used. The scores from these evaluations are reviewed and summarized by the Clerkship Director.

**DIRECT OBSERVATION**

To determine competency in history taking and physical examinations, each student is directly observed doing a newborn examination (while in the nursery rotation) and a history and physical examination of an older child (either on the inpatient or outpatient rotations).

**MEDICAL RECORDS**

On all clinical services, students are expected to write appropriate notes. Obviously, the specific content of the notes will be dictated by the specific service. In general, they should be legibly written, and adequately reflect findings (historical, physical, laboratory, etc.), assessment, and plan. These will be reviewed by faculty and/or residents. The quality of a student's written records will be considered in the clinical evaluations. With implementation of EMR within a year, students will be able to access their patient's data; however their EMR notes will have to be cosigned by faculty or senior resident.

**ADMISSION HISTORIES AND PHYSICAL EXAMINATIONS**

On inpatient services, Histories and Physicals are expected to be thorough, complete and follow the recommended outline/format for Pediatrics. During the clerkship, each student submits written copies of two admission notes (one from the inpatient service and one from the nursery service) for formal evaluation and feedback.

**CASE PRESENTATIONS**

The ability to present cases is key to clinical education. Students must be able to present in a variety of situations- attending rounds, inpatient and outpatient services, nursery, case conferences, etc. During the clerkship, each student is required to present and discuss a case at case conference.

**DEPARTMENTAL EXAMINATIONS**

Students will be given two (2) in-house examinations during the rotation. They cover information from required readings, lectures, and self-learning materials.

**OSCE**

Students are required to participate in and pass an OSCE at the end of the block.

**NATIONAL BOARD OF MEDICAL EXAMINATION (NBME)**

At the end of the rotation every student will take the NBME shelf exam in pediatrics. A minimum percentile score by the quarter in which the exam is taken is required for successful completion of the clerkship. Failure of the NBME will require remediation and reexamination.

Academic Year: 2011-12

***List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).***

Faculty pediatricians and residents in pediatrics who have sufficient contact with students to assess their performance are asked to complete the clerkship assessment form. This information is reviewed by course directors who then complete a final summative assessment and assign the student grade for the clerkship.

***If NBME subject (shelf) examinations are used, give mean scores for the last three years.***

The clerkships curriculum for the PLFSOM was implemented for the first time in the 2011-12 AY. Consequently we only have shelf-exam results for the current year. National averages provided by the NBME are included to serve as a national benchmark.

<b>Year</b>	2011-12	National Average
<b>Score</b>	77.2	76.9

***Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?***

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Narrative comments are required components of the student assessment system at PLFSOM.

**Clerkship Outcomes/Evaluation**

***Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.***

In February 2012, a new, state-of-the-art Children's Hospital of El Paso opened its doors adjacent to the medical school and University Medical Center. A number of new physicians are being recruited into the Department of Pediatrics to meet expanding clinical needs. Increase in faculty numbers will off-set the growth of the student body. Subspecialty faculty will bring new patients into the educational program.

***Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.***

All students are asked to complete an on-line anonymous evaluation on the clerkships sharing a block. (See results below.)



<b>Pediatrics</b>				
Class of 2013 AY2011-2012 (Response rate=95%)				
Offering Block	1	2	3	Overall
This block was well organized.	64%	64%	55%	61%
The learning objectives were clearly identified.	64%	45%	64%	58%
The block met the identified learning objectives	64%	73%	70%	69%
The amount of material presented during the block was reasonable.	73%	55%	91%	73%
Shared learning experiences between the two disciplines in this block contributed to my understanding of clinical medicine.	36%	27%	55%	39%
<i>Individual Clerkship</i>				
The methods used to evaluate my performance during this clerkship provided fair measures of my effort and learning.	82%	36%	91%	70%
In this clerkship, duty hour policies were adhered to strictly.	82%	100%	100%	94%
I had appropriate exposure to ambulatory patients.	100%	82%	91%	91%
I had enough patient management opportunities.	91%	82%	90%	88%
I received sufficient supervision during my clinical interactions.	91%	100%	100%	97%
I received sufficient feedback on my performance.	82%	82%	100%	88%
The clinical presentation schemes helped me organize my approach to patient care.	45%	36%	55%	45%
The clerkship provided appropriate preparation for the shelf exam.	45%	40%	82%	56%
I was observed delivering patient care.	100%	91%	100%	97%
Overall, I learned useful knowledge and/or skills during this clerkship.	100%	100%	100%	100%

***Identify major successes in the clerkship and challenges to be overcome.***

***Successes:***

Students have been evaluated by experienced faculty who judge their performance to be at the expected level. NBME scores confirm this perception. Significant numbers of students have expressed an interest in a career in pediatrics. We are expanding the curriculum to include the addition of new faculty. The new El Paso Children's Hospital is a state-of-the-art facility that is attracting new faculty from all over the country (and world) and will provide the backdrop for expansion of the teaching and patient base.

***Challenges:***

- Students are very focused on the standardized test rather than the experience of Pediatrics. We will continue to emphasize the need for and model interaction with Pediatric patients.
- The "shared" learning experiences were not particularly well received. The clerkship directors in OB-GYN and Pediatrics have proposed enhancements in this integrated clerkship block to highlight areas within each discipline that compliments the other. These enhancements have been approved by the CEPC and will be implemented in the 2012-13 academic year.
- Continued increase in size of medical school class will outgrow our sites for clinical experiences. To address this we are taking the following actions:

Academic Year: 2011-12

- a. Addition of pediatric hospitalists to the faculty allows for 24 hour/7 days a week coverage of the inpatient service. We are able to accommodate the increased class size for 2012 – 2013 by dividing the El Paso Children’s Hospital inpatient service into 2 unique rotations for students – an inpatient day service and inpatient night service. Routine admissions occur during day hours while emergency admissions occur at night. The service provides different pediatric experiences under the supervision of in-house faculty and residents who will provide teaching.
- b. Addition of pediatric subspecialists to the faculty will provide increasing numbers and diversity of pediatric patients for both the inpatient and outpatient services. A growing inpatient census will require more teams to care for the patients, and will accommodate more students as the number of teams grows.
- c. We are working to establish other outpatient sites as the student body grows. These include the TTUHSC satellite clinics, other clinics, and community pediatricians’ offices. This will provide the students with a variety of outpatient experiences.

<b>PART C. REQUIRED CLERKSHIP FORM</b>	
<b>Clerkship title:</b>	Surgery (Surgery-Family Medicine Block)
<b>Sponsoring department or unit:</b>	Surgery
<b>Name of Clerkship director:</b>	Angel M. Morales Gonzalez M.D., F.A.C.S.

[Update, June 30, 2012]

Surgery and Family Medicine share a 16 week block. During this block students participate in both clerkships. While each discipline has developed learning goals and objectives unique to the discipline, opportunities for shared learning experiences have also been developed. Didactic time is shared and a number of sessions have been designed to illustrate the integration of family medicine and surgical perspectives on health, illness and disease. The proportion of time allocated to the surgery clerkship experiences is equal to about 10 weeks time. The surgery component of this block is scheduled to be roughly 70% in-patient and 30% out-patient.

### Rotations

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

The surgical component of the block consists of the following rotations:

- General Surgery (in-patient, operating room, outpatient surgery and clinic) — 6 weeks
- Surgery selective (in-patient, operating room, and outpatient) — 4 weeks
  - Pediatric surgery
  - Anesthesiology
  - Ophthalmology
  - Orthopedic surgery
  - Trauma and critical care surgery
  - Plastic surgery
  - Ear, nose and throat

### Clerkship Objectives

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The surgery component of the surgery/family medicine block is designed to provide students with educational experiences that will introduce them to a surgical approach to the diagnosis and treatment of diseases. Students participate in the pre-, intra-, and post-operative care of patients. The specific learning objectives of this clerkship are in accordance with the Association of Surgical Educators' recommendations for third year medical students. Further, faculty members in surgery and family

medicine have identified a number of shared topics for integrative teaching and learning (e.g., pre-operative assessment, post-operative care, wound care, pain management, fractures and dislocations, etc.).

Example core learning objectives of the surgical clerkship experience tied to the Accreditation Council on Graduate Medical Education (ACGME) competency domains are provided below. The alpha-numeric code attached to the example learning objectives corresponds to the institutional objectives listed in Section II ED-1-A of the database. Specific sub-specialty learning objectives have been developed for the selective component of the experience. Specific learning objectives are included in the syllabus which will be available for on-site review.

## **MEDICAL KNOWLEDGE**

### **Objectives:**

The student will know the following anatomical considerations at the MS III level:

- The basic anatomy of the abdomen including its viscera and anatomic spaces (MK-1, 2)
- The anatomy of the chest, including the heart and lungs (MS-1, 2)

The student will know, at the MS III level, the diagnostic criteria for commonly occurring disorders within the following categories (please see specific surgery entries for ED-2 in Section II of the database) (MK-2, 3, 4):

- Alimentary tract/abdominal
- Hepatobiliary/Pancreas
- Breast
- Vascular/Cardiac/Thoracic
- Endocrine
- Trauma/Critical Care

## **PATIENT CARE**

By the end of the surgery clerkship, the student will demonstrate the ability to:

- Consistently obtain a reliable history and perform an appropriate physical examination (PC-2, 4, 6, ICS-2)
- Develop a problem list, differential diagnosis, and plan for treatment (PC-6, PBL 1, 6)
- Actively participate in the pre-operative and post-operative management of patients examined and evaluated (PC-1)
- Utilize diagnostic testing and imaging resources effectively and efficiently (PC-5)
- Demonstrate knowledge of surgical scrubbing technique, sterile technique, proper attire, and proper conduct in the operating room
- List steps in the placement of a tube thoracostomy
- Demonstrate the correct handling of tissues, techniques of wound closure, and the selection of suture materials appropriate for each clinical situation
- Correctly use common surgical instruments
- Demonstrate the ability to evaluate and provide appropriate care of trauma patients (PC-2)

### **INTERPERSONAL AND COMMUNICATON SKILLS**

Throughout this clerkship, students will demonstrate the ability to:

- Communicate effectively with patients and their families (ICS-1,3)
- Appropriately utilize interpreters, if necessary, to communicate with patients with limited English language proficiency (ICS-1)
- Communicate effectively and respectfully with physicians and other health professionals in order to share knowledge and discuss management of patients (ICS-3)
- Record history and physical examination findings in a well organized manner and in an accepted format (ICS-2)

### **PROFESSIONALISM/ ETHICS**

Throughout this clerkship, students will demonstrate a commitment to:

- Being sensitive to patient and family concerns (Prof-3)
- Maintaining confidentiality and respecting patient privacy (Prof-1, 5)
- Managing personal biases in caring for patients of diverse populations and different backgrounds and recognizing how biases may affect care and decision making (Prof-3, 7)
- Advocate for patient needs (Prof-9)
- Meeting professional obligations and the timely completion of assignments and responsibilities

### **PRACTICE BASED LEARNING AND IMPROVEMENT**

During this clerkship experience, the student will:

- Demonstrate the use of technology (e.g. portable electronic devices) for accessing and evaluating evidence based medical information (PBL-5)
- Demonstrate search skills using PICO questions and acquire results applicable to the provision of clinical surgical care (PBL-2, 3)
- Accept feedback from the faculty and incorporate this to improve clinical practice (PBL-4,7)

### **SYSTEM BASED PRACTICE**

During this clerkship experience, the student will demonstrate the ability to:

- Recognize the role that each ancillary service (e.g. physical therapy, speech pathology, case managers, nurse coordinators) plays in the treatment of surgical illnesses (SBP-1)
- Identify the components of the in-hospital and outpatient care network (e.g. inpatient admission, observation admission, long term care facility, rehabilitation facility, home health facility) and the role each plays in the discharge process and the health care system (SBP-2)
- Recognize and understand different funding sources for patient care and how the presence or lack of these affects individual and community health (SBP-2)

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?***

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for clerkship experiences in surgery and also reflect nearly 40 years of institutional experience providing clerkship experiences as a regional campus of the TTUHSC Lubbock School of Medicine before 2011.

Students record their patient encounters and the procedures they perform in *Op-log*, an on-line patient encounter log. Individual students' clinical experiences are reviewed by the clerkship director during the mid-clerkship evaluation and feedback session to ensure that students have had the clinical experiences needed to meet clerkship objectives. Every effort is made to provide students with real patient experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, standardized patient encounters or selected readings will be employed.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

As noted above, the clerkship director is responsible for ensuring that student clinical experiences are appropriate for meeting clerkship objectives. At the mid-clerkship evaluation and feedback session the clerkship director will identify conditions that have not been seen, remind the student and/or attending faculty about the need for students to be exposed to required conditions, and identify appropriate alternative methods for meeting the requirement if actual patient encounters have not occurred by a week or so prior to the end of the clerkship.

### **Preparation for Teaching**

Attending faculty and residents are oriented to the experience by the Clerkship director and provided access to the syllabus and evaluation forms that they will use to assess student performance. In addition to this, faculty members meet twice a year to discuss clerkship related issues. During these meetings, an update on the status of the clerkship is provided in both oral and written form. The written version of the clerkship update is circulated electronically to Faculty that could not attend the meeting. A departmental sign in sheet is used to ensure that all faculty members have read and are familiar with the latest clerkship update. The last Faculty meeting was held on April 30<sup>th</sup>, 2012. Minutes from these meetings are also kept by the Clerkship coordinator. A detailed faculty update was distributed on June 4, 2012.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

All residents are required to participate in a "Residents as Teachers" program administered by the Office of Graduate Medical Education. The Clerkship director orients the residents once every year to their roles and responsibilities with particular emphasis on goals, objectives, and assessment methods and criteria. A resident orientation was held on May 10<sup>th</sup>, 2012. In addition, each resident is provided a copy of the clerkship syllabus, evaluation forms, and the latest written clerkship update distributed to faculty members. A departmental sign in sheet is used to verify and document that residents have read and are familiar with the latest clerkship update.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

Academic Year: 2011-12

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Surgery
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

1. Direct person-to-person evaluation by faculty and residents. There is a formative evaluation by the clerkship director at the mid-clerkship evaluation and feedback session and a summative evaluation at the end of the clerkship. These are both online.
2. There is an end-of-clerkship observed skills clinical exam (OSCE) to evaluate students' clinical patient evaluation skills. Students must pass this exam and are required to remediate if they do not.
3. Residents and faculty are asked to complete a clinical assessment form evaluating student performance.
4. Students take the National Board of Medical Examiners' surgery test to evaluate their medical knowledge. This is a summative exam.
5. End of year 3 OSCE

The clerkship director is responsible for ensuring that these assessments are completed on each student. The clerkship director is also responsible for reviewing all data on student performance and completing a final assessment and assigning the final grade. Based on Op-log entries, the clerkship director makes a decision during the last 7-10 days of the clerkship about assigning an alternative method for meeting clerkship clinical encounter expectations that had not been accomplished through direct patient care.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Full time and part-time faculty members as well as resident physicians PGY-2 and above complete the clinical assessment forms that are used by the clerkship director to determine the final summative assessment and determine the final grade.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

This year marks the first year of the implementation of the PLFSOM clerkship curriculum. Data is only available for the 2011-12 AY.

<b>Year</b>	2011-12	National Average
<b>Score</b>	75.5	74.1



*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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A narrative statement is a required component of the clinical assessment of student performance for all clerkships.

**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Faculty, patients, and resources, including simulation, are adequate to meet the learning objectives for the clerkship with the current student body size.

Resources available to the students include the University Medical Center of El Paso, a teaching hospital which is also a Level One Trauma center. In February 14, 2012, the new El Paso Children’s Hospital was inaugurated. This also serves a teaching site. The Texas Tech Surgical Clinic is located on the medical and academic campus. Learning areas for didactics include classrooms in the Medical Education building, classrooms in the Administration and Education Center building, and conference rooms available in the University Medical Center. The medical school also has a state-of-the-art simulation center.

Computer resources are available in the TTUHSC libraries. In addition, the TTUHSC library and TTUHSC website can be accessed from the University Medical Center 24 hours a day, 7 days a week. The library resources for surgery students include several textbooks, the web-based surgical manual, and access to numerous databases for literature searches. There are also online journal resources. Other resources include hospital call rooms, work areas for patient charting, examination rooms, and online access to diagnostic imaging.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

At the end of each block, students complete anonymous on-line evaluations on the two clerkships sharing the block.

<b>Surgery</b>				
Class of 2013 AY2011-2012 (Response rate = 86%)				
Offering Block	1	2	3	Overall
This block was well organized.	78%	67%	57%	66%
The learning objectives were clearly identified.	78%	75%	64%	71%
The block met the identified learning objectives	78%	67%	64%	69%
The amount of material presented during the block was reasonable.	100%	67%	79%	80%
Shared learning experiences between the two disciplines in this block contributed to my understanding of clinical medicine.	78%	33%	36%	46%

<i>Individual Clerkship</i>				
The methods used to evaluate my performance during this clerkship provided fair measures of my effort and learning.	44%	58%	71%	60%
In this clerkship, duty hour policies were adhered to strictly.	67%	92%	64%	74%
I had appropriate exposure to ambulatory patients.	89%	83%	86%	86%
I had enough patient management opportunities.	67%	58%	79%	69%
I received sufficient supervision during my clinical interactions.	89%	58%	92%	79%
I received sufficient feedback on my performance.	33%	54%	68%	54%
The clinical presentation schemes helped me organize my approach to patient care.	22%	25%	21%	23%
The clerkship provided appropriate preparation for the shelf exam.	33%	45%	64%	50%
I was observed delivering patient care.	78%	73%	93%	82%
Overall, I learned useful knowledge and/or skills during this clerkship.	89%	91%	100%	94%

*Identify major successes in the clerkship and challenges to be overcome.*

**Successes:**

- Student performance on the NBME surgery test has been above average despite the fact that in our integrated approach to clerkships PLFSOM students must take two shelf exams at the end of each block.

**Challenges:**

- Competing demands for faculty time related to clinical responsibilities and resident education has directly or indirectly had the following consequences:
  - Delays in the timely filling out of student evaluations.
  - Students' perceptions that they are not being provided with desired level of supervision and feedback
  - Students' perceptions of the level of how well the clerkship was preparing them for success on the shelf-exam. (However, as noted, student performance is quite good on this particular measure of learning.)
  - Students' overall satisfaction with their education during the surgery clerkship.
- True integration of patient encounters and didactic sessions has proven to be difficult in the past three blocks. Once again, commitment to other responsibilities produces a challenge for faculty participation in both planning and implementation of fully integrated experiences and didactics.

**Plans for addressing challenges:**

- Several new faculty members are slated to join the faculty during the 2012-13 academic year. This will improve the student-faculty ratio and hopefully improve student perceptions.
- We have been stressing the importance of timely student evaluation and feedback in faculty meetings and informational session about the clerkship. The senior associate dean for medical education met with the department about this issue and the department chair, in support of the clerkship director, has communicated frequently via e-mail with department faculty members regarding his expectations that student evaluations be completed.

Academic Year: 2011-12

- The Surgery and Family Medicine clerkship directors are meeting to produce better integration of didactic and clinical experiences. Improved integration and coordination of didactic topics will provide additional opportunities for revisiting the clinical schemes from years 1-2.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Family Medicine (Surgery-Family Medicine Block)
<b>Sponsoring department or unit:</b>	Department of Family and Community Medicine
<b>Name of clerkship director:</b>	Charmaine Martin, MD

Family Medicine and Surgery share a 16 week block. During this block students participate in both clerkships. While each discipline has developed learning goals and objectives unique to the discipline, opportunities for shared learning experiences have also been developed. Didactic time is shared and a number of sessions have been designed to illustrate the integration of family medicine and surgical perspectives of health, illness and disease. The proportion of time allocated to family medicine experiences is equal to about 6 weeks. In addition, students participate in a 15 week, one-half day per week longitudinal experience. The family medicine clerkship is entirely an outpatient experience.

### Rotations

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

The Family Medicine component of this block consists of the following rotations:

- Outpatient Clinic (4 weeks)
- Community preceptorship clinic (2 weeks)
- Family Medicine Longitudinal Selective (15 half-days over 15 weeks)
  - Chronic disease management
  - Geriatrics
  - Sports medicine
  - Prenatal care
  - Pharmacotherapeutics in primary care
  - Integrative medicine
  - Native American Medicine

### Clerkship Objectives

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The goals and objectives of this clerkship were developed internally. However, we consulted national guidelines developed by the family medicine educational community. These include the Family Medicine Curriculum Resource Project materials (<http://www.stfm.org/fmhub/fm2007/January/Kent50.pdf>) and the recently published core Family Medicine Clerkship Curriculum developed by the Society for Teachers of Family Medicine ([http://www.stfm.org/documents/fmcurriculum\(v3\).pdf](http://www.stfm.org/documents/fmcurriculum(v3).pdf)).

Academic Year: 2011-12

The goals and objectives of this clerkship are also influenced by the institutional expectation that students will revisit the Clinical Presentations (CPs) that were addressed during the first two years of the curriculum, with a greater emphasis on evidenced-based treatment. Further, faculty members in family medicine and surgery have identified a number of “shared” topics for integrative teaching and learning (e.g., pre- and post- operative care, pain management, fractures and dislocations, dermatology suturing, trauma, etc.).

A summary of core learning objectives, organized by ACGME competency domains, follows. The codes associated with these objectives reflect the PLFSOM institutional learning objectives outlined in ED-1, 1-A. Specific learning objectives for this clerkship can be found in the syllabus which will be available for inspection on-site.

### **MEDICAL KNOWLEDGE**

By the end of the Family Medicine Clerkship students will be able to:

- Describe the prevalence and natural history of common acute illnesses and chronic diseases over the course of the individual and family life cycle (MK-1, 2).
- Demonstrate an investigatory and analytic approach to clinical situations integrating basic and clinical science concepts in the diagnosis and management of illness and disease (MK-3,4).

### **PATIENT CARE**

By the end of the Family Medicine Clerkship students will be able to:

- Gather information, formulate differential diagnoses, and propose plans for the initial evaluation and management of patients with common presentations seen in family medicine (PC-4, 6, PBL-1,6).
- Make informed decisions about diagnostic and therapeutic interventions using patient information and preferences, scientific evidence, and clinical judgment (PC-1, 5).
- Apply screening protocols based on evidence based guidelines to identify risks of disease or injury and opportunities to promote wellness over the course of the lifespan (PC-5)
- Apply culturally appropriate behavioral change strategies to support patient wellness (PC-1)

### **INTERPERSONAL AND COMMUNICATION SKILLS**

By the end of the Family Medicine Clerkship students will be able to:

- Create and sustain a therapeutically sound relationship with patients and their families based on a patient-centered approach (ICS-1, 3).
- Effectively educate patients and their families about health, illness, and prevention as appropriate to the clinical situation (ICS-1,3).
- Demonstrate effective, respectful communication with clinical faculty, other health care professionals, and staff (ICS-1,3).
- Clearly and accurately document information in the medical record (ICS-2).
- Demonstrate the ability to communicate effectively with patients and their families through interpreters for those with limited English language proficiency (ICS-1, 3).

### **PROFESSIONALISM/ETHICS**

Throughout the Family Medicine clerkship student will demonstrate:

Academic Year: 2011-12

- Respect for patients, their families, and all members of the health care team (Prof-3, 5, 7)
- Adherence to ethical principles governing the doctor-patient relationship including respect for patient confidentiality and privacy (Prof-1, 4, 6).
- Respect for patients whose lifestyles and values may be different from those of the student (Prof-3, 5, 7).
- Awareness of the limits of one's own knowledge, experience, and capabilities (Prof-6, PBL-4).

### PRACTICE-BASED LEARNING AND IMPROVEMENT

Throughout the Family Medicine Clerkship the student will demonstrate the ability to:

- Locate, evaluate, and apply evidence from scientific studies related to the patient's health problems (PBL- 2, 5).
- Apply knowledge of study design and statistical methods to the appraisal of information on diagnostic and therapeutic effectiveness (PBL-2,5)
- Use information technology and electronic resources to access, manage, and evaluate information in support of personal education (PBL-5)
- Solicit and respond to feedback to improve one's clinical practices (PBL-3,4).

### SYSTEMS-BASED PRACTICE

By the end of the Family Medicine Clerkship, the student will be able to (SBP 1-2):

- Describe the role of the family physician as a coordinator of care
- Discuss the knowledge, attitudes, and skills necessary for providing longitudinal, comprehensive, and integrated care for patients with common chronic medical problems
- Collaborate with other health professionals to provide patient-centered and preventive services across the lifespan
- Assist patients in dealing with system complexities to reduce access barriers
- Identify appropriate medical and non-medical consultative resources
- Describe strategies for controlling health care costs and allocating resources without compromising quality of care.

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for clerkship experiences in family medicine and also reflect more nearly 40 years of institutional experience providing a family medicine clerkship experience as a regional campus of TTUHSC Lubbock School of Medicine before the accreditation of the Paul L. Foster School of Medicine as an independent medical school.

Students record their patient encounters and the procedures they perform in the on-line electronic patient encounter log. Individual students' clinical experiences are reviewed at the mid-way point and end of the

rotation with the course director to discuss the rotation experience. Every effort is made to provide students with “real patient” experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, special readings, and/or standardized patient encounters will be employed. A decision about employing an alternative method is made 7-10 days before the end of the rotation based on a review of Op-log entries.

***Who is responsible for ensuring that each student’s clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The clerkship director is responsible for ensuring students' clinical experiences are sufficient. Students see a variety of patients with various diseases in a variety of settings. Students see patients at the Family Medicine Center, Community Partnership Clinics, private office settings, VA nursing home and home visits. Students keep track of their patients using an on-line patient encounter log.

By viewing the students' patient encounter log, evaluating their performance on the weekly quizzes, and reviewing their evaluations of the rotations, we can gauge if the clinical experiences are appropriate to meet the objectives of the clerkship. If a student is not meeting the objectives, we will use other means to supplement their experience as described above.

### **Preparation for Teaching**

Attending faculty and residents (see below) are oriented to the experience by the clerkship director and provided copies of the syllabus and evaluation forms that they will use to assess student performance. Faculty attended a March 2012 retreat to review clerkship goals and objectives and brainstorm about how to handle increased numbers of students. A workshop on student assessment and feedback is planned for early fall, 2012. The clerkship director meets individually and with small groups of community based faculty to provide them information about the clerkship and expectations of students and faculty. In the spring of 2012, the department hosted a dinner workshop that was attended by approximately 25 community based faculty members.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

PGY2 and PGY3 residents who are in good standing in the program participate in medical student education. All residents are required to participate in a Residents as Teachers program developed by the Office of Graduate Medical Education. The clerkship director meets with residents to review the syllabus, learning objectives, and evaluation instruments used to assess student performance.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

Faculty members across instructional sites are invited to an annual departmental dinner to discuss clerkship goals and objectives. The clerkship director also visits the various community sites in person. All faculty members are provided copies of the syllabus and of the clinical assessment instruments used to evaluate student performance. The Community Faculty Coordinator and Director have a close relationship with the office staff and community physicians. The site visits involve checking on students and the suitability of the learning environment, and to answer any questions or concerns the staff or physician may have.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Family Medicine
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

A variety of methods are employed to assess student performance including the following:

- Direct observation by resident and faculty teachers of history and physical examination skills followed by completion of a clinical encounter form/card
- Performance on AAFP board review questions (formative purposes)
- Performance on the NBME Family Medicine Core shelf exam
- Performance on Block OSCE
- Performance on end of year 3 OSCE.

The clerkship director is ultimately responsible for ensuring that the assessment methods listed above are implemented.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Faculty, community preceptors, and residents contribute to the evaluation of each clerk by completing the assessment form developed by the members of the clerkship committee for that purpose. This information is compiled and reviewed by the clerkship director who is responsible for assigning the final grade based on the totality of available information.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

PLFSOM is implementing its clerkships for the first time in the 2011-12 academic year. Data is only available for that year.

<b>Year</b>	2011-12	NBME Set Scaled Average
<b>Score</b>	69.6	70

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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A narrative comment is a required component on all final clerkship evaluations resulting in the students final grade.



**Clerkship Outcomes/Evaluation*****Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.***

Full time faculty numbers are adequate and the department is expanding with recruitment underway for new faculty members at the Family Medicine Center and for a family physician hospitalist. The clerkship director will need additional time to observe students' interactions with patients and to ensure the quality of the clerkship as the class size expands over time to 100 students per class.

We will need to recruit additional community preceptors as the class size expands. Efforts are underway to identify additional community faculty members. Patient volume is more than adequate to meet the needs of this clerkship.

***Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.***

At the end of each block students complete anonymous on-line evaluations of each of the clerkships in the block.

<b>Family Medicine</b>				
Class of 2013 AY2011-2012 (Response rate = 86%)				
Offering Block	1	2	3	Overall
This block was well organized.	78%	67%	57%	66%
The learning objectives were clearly identified.	78%	75%	64%	71%
The block met the identified learning objectives	78%	67%	64%	69%
The amount of material presented during the block was reasonable.	100%	67%	79%	80%
Shared learning experiences between the two disciplines in this block contributed to my understanding of clinical medicine.	78%	33%	36%	46%
<i>Individual Clerkship</i>				
The methods used to evaluate my performance during this clerkship provided fair measures of my effort and learning.	78%	83%	85%	82%
In this clerkship, duty hour policies were adhered to strictly.	100%	92%	92%	94%
I had appropriate exposure to ambulatory patients.	89%	100%	100%	97%
I had enough patient management opportunities.	100%	92%	100%	97%
I received sufficient supervision during my clinical interactions.	100%	92%	100%	97%
I received sufficient feedback on my performance.	100%	83%	92%	91%
The clinical presentation schemes helped me organize my approach to patient care.	89%	83%	54%	74%
The clerkship provided appropriate preparation for the shelf exam.	78%	58%	62%	65%
I was observed delivering patient care.	100%	100%	100%	100%
Overall, I learned useful knowledge and/or skills during this clerkship.	100%	100%	100%	100%

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

- The family medicine clerkship is highly regarded by the students, as indicated by the evaluation data summarized above. They also comment favorably on the dedication and skills of the clerkship director.
- This clerkship contributes to vertical integration of the curriculum through its continuing use of the clinical presentation schemes that were introduced in years 1 and 2. Residents and faculty are instructed on where to locate clinical presentation schemes and encouraged to incorporate them in their one-on-one and didactic teaching.

*Challenges:*

- We are surprised by student responses to the question on preparation for the NBME Family Medicine Core exam. We have students complete AAFP Board Review Questions and they have access to other question banks. Student are also given time to study and have no evening or weekend call responsibilities. The “core” exam is new and the clerkship director has reviewed that examination to ensure that the curriculum is adequately addressing the content of that examination. Residents will start question review sessions with the students. We suspect that part of the issue here relates to the fact that students must take two shelf-examinations at the end of each block.
- We were also surprised by the drop in the proportion of students who indicated that they had received sufficient feedback—from 100% in block 2 to 83% in block 3. We will continue to monitor this to see if this is a problem. We have already scheduled a fall 2012 workshop on feedback skills for paid and community faculty to improve faculty skills in this area.
- The integration of Family Medicine and Surgery “shared topics” has been logistically difficult. The two clerkship directors are meeting to improve integration and will present ideas for improvement to the Curriculum and Educational Policy Committee.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Emergency Medicine
<b>Sponsoring department or unit:</b>	Department of Emergency Medicine
<b>Name of clerkship director:</b>	Michael D. Parsa, MD

Rotations

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week required experience conducted in the Emergency Department of University Medical Center staffed by faculty members and residents in the Department of Emergency Medicine of PLFSOM.

Clerkship Objectives

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The objectives of the clerkship are designed to reinforce selected clinical presentations outlined by the PLFSOM curriculum in years 1-2. The topics are also consistent with established external guidelines (Task Force on National Fourth Year Medical Student Emergency Medicine Curriculum-- Manthey et al Emergency Medicine Clerkship Curriculum: An Update and Revision. Acad Emerg Med 2010; 17:638-643). The Emergency Medicine Clerkship objectives have been linked to the appropriate Institutional Learning Objectives of the Paul L. Foster School of Medicine and the associated ACGME competencies. The code in parentheses refers to specific institutional learning objectives documented in the PLFSOM database Section II, ED-1,1-A).

MEDICAL KNOWLEDGE

**Objectives:** By the end of the Emergency Medicine Clerkship students will be able to:

- Demonstrate an investigatory and analytic approach to clinical situations, integrating basic and clinical science concepts (MK-1,2, PC-6, PBL-1,6)
- Demonstrate the ability to interpret the implications of diagnostic tests (MK-3)

PATIENT CARE

**Objectives:** By the end of the Emergency Medicine Clerkship students will be able to:

- Describe the basic ED management of the following common acute clinical conditions (PC-1, 2, 5, 6).
- Gather information, formulate differential diagnoses, and propose plans for the initial evaluation and management of patients presenting to the emergency department, while demonstrating the

ability to identify “worst case scenarios” and to prioritize likelihood of diagnoses based on clinical findings (PC-1, 3, 6, PBL-1).

- Make informed decisions about diagnostic and therapeutic interventions using patient information and preferences, scientific evidence, and clinical judgment (PC-3, 5).
- Recognize life-threatening illness or injury and apply basic principles of stabilization to the early management of these conditions (PC-2)
- Provide basic life support and cardiopulmonary resuscitation
- Demonstrate proficiency, at a medical student level, in basic procedural skills, including, but not limited to, the following:
  - Basic Airway Management
  - Peripheral Intravenous Access
  - Suturing and Management of Wounds
  - EKG/cardiac rhythm analysis
  - Foley catheter placement

In addition, students will be exposed to the following procedures and diagnostics:

- ED ultrasound
- Orthopedic splinting techniques
- Central venous access
- Tube thoracostomy
- Endotracheal intubation

### INTERPERSONAL AND COMMUNICATION SKILLS

**Objectives:** By the end of the Emergency Medicine Clerkship, students will be able to:

- Demonstrate the ability to respectfully, effectively, and efficiently establish a therapeutic relationship with patients and their families (ICS-1).
- Provide effective, accurate, and concise presentations to colleagues and attending physicians (ICS-2, 3).
- Demonstrate effective, respectful communication with ED faculty, other health care professionals, and staff (ICS-1, 3).
- Demonstrate the ability to use listening skills to facilitate the exchange of information between patient and clinician (ICS-1)
- Clearly and accurately document information in the medical record (ICS-2)
- Demonstrate the ability to communicate effectively with patients and their families through interpreters for those with limited English language proficiency (ICS-1)

### PROFESSIONALISM/ETHICS

**Objectives:** Throughout the Emergency Medicine clerkship students will:

Academic Year: 2011-12

- Demonstrate respect and compassion for patients, their families, and all members of the health care team (Prof-3, 5, 7)
- Display sensitivity to cultural differences (Prof-7)
- Demonstrate adherence to ethical principles governing the doctor-patient relationship, including respect for patient confidentiality and privacy (Prof-1)
- Show respect for patients whose lifestyles and values may be different from those of the student (Prof-3, 5)
- Display reliability, by arriving on-time and prepared for all required shifts and activities
- Demonstrate awareness of the limits of his or her own knowledge, experience, and capabilities (Prof-6, PBL-3, 4, 7)

### **PRACTICE-BASED LEARNING AND IMPROVEMENT**

**Objectives:** Throughout the Emergency Medicine Clerkship, the student will demonstrate the ability to:

- Locate, evaluate, and apply evidence from scientific studies related to the patient's health problems (PBL-1, 6).
- Investigate a clinical question relevant to patient care through the evaluation of primary research (PBL-2,7, MK-4).
- Use information technology and electronic resources to access, manage, and evaluate information in support of personal education (PBL-3, 5).
- Solicit and respond to feedback to improve his or her clinical practices (PBL-3, 4, 7).
- Accurately assess his or her own performance and identify areas of needed improvement (PBL-7).

### **SYSTEMS-BASED PRACTICE**

**Objectives:** By the end of the Emergency Medicine Clerkship, the student will be able to:

- Describe the role of emergency medicine in the health care system (SBP-2)
- Demonstrate understanding of limitations patients face due to lack of resources (SBP-1)
- Describe strategies for controlling health care costs and allocating resources without compromising quality of care (SBP-2)
- Demonstrate understanding of the indications, cost, risks, and evidence behind commonly performed diagnostic studies (SBP-2, PC-5).
- Assist patients and their families to gain access to necessary health care resources (SBP-2, Prof-9)
- Identify medical and social service referral sources appropriate to the clinical situation (SB-2).

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for clerkship experiences in emergency medicine.

Students will record their patient encounters and the procedures they perform in the on-line electronic patient encounter log. Individual students' clinical experiences are reviewed at the mid-way point and end of the rotation with the course director to discuss the rotation experience. Every effort will be made to provide students with "real patient" experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

The clerkship director will conduct a mid-clerkship evaluation with each student.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The clerkship director is responsible for ensuring that students are making satisfactory progress in meeting clerkship clinical experiences. The clerkship director, with the assistance of the clerkship coordinator and the Office of Curriculum, Evaluation and Accreditation will monitor student entries in Op-Log. The clerkship director will give student feedback on their experience and where they are lacking critical exposures. If necessary, the clerkship director can modify the students schedule or have the student pick up an additional shift to increase exposures. If by the last week of the clerkship there is still a gap in experience, the clerkship director will require the student to complete a computerized case or high fidelity simulation. The ED at UMC has a high volume of patients 24/7 and we are confident that students will gain the exposures they need to meet clerkship objectives.

### **Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the clerkship director and provided copies of the syllabus and evaluation forms that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

All residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. In addition, each emergency medicine resident will be introduced to their roles and expectations in teaching students during an annual hour-long clerkship overview. This overview will provide residents with copies of the Medical Student Emergency Medicine Clerkship syllabus and will also emphasize goals, objectives, and assessment methods and criteria.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Emergency Medicine Clerkship
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*Methods for Evaluating Clerk Performance*

*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Students will be assigned to one faculty member during each 8-12 hour shift. During that shift the specified faculty member will be responsible for evaluation, supervision and instruction of the student. At the end of the shift the faculty member will fill out the standard evaluation form which will be given to them by the student. After completing the form, the faculty member will hand it back to the student and discuss with the student their performance during the shift.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Full and part time clinical faculty with teaching appointments at PLFSOM will evaluate students as described above.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative statement is required for all students as a component of their assessment.

*Clerkship Outcomes/Evaluation*

*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

The department has adequate faculty, all of whom are board certified or eligible in EM, for patient care and teaching. Some have additional qualifications, including two double boarded in Medical Toxicology, one double boarded in Family Medicine, two with PhDs (biophysics and biochemistry), and 2 with master's qualifications (one in clinical research design and another in preventative medicine).

The patient population at the UMC Emergency Department has >60,000 visits per year with an admission rate of 20% and high acuity. The population covers the entire spectrum of emergency care, including Level 1 Trauma designation (2600 admissions yearly), 30% Pediatric visits, and a large sick adult Medical census. We consider the patient mix and volume more than adequate for medical student training needs.

Other resources include a simulation section with adequate equipment and dedicated faculty. The size and scope of the section is expected to greatly increase over the next 3 years.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

For a number of years, the faculty in the department of emergency medicine has been providing elective experiences in emergency medicine for the students in the TTUHSC-SOM. This is a highly rated experience and provides us the experience necessary to include this in the PLFSOM curriculum as a required clerkship. We have more than adequate faculty, space, and patient resources. The PLFSOM also has excellent simulation resources for instructional purposes.

*Challenges:*

Broadening the clerkship to include EMS experience will be a logistical challenge. We are actively working with county emergency services to include brief ambulance ride-along experiences and 911 call center exposure for each student. The larger numbers of students than we currently see is a challenge we have been anticipating for some time. We believe that we are going to be able to provide adequate clinical experience for each student, but will monitor this closely and respond as needed.



<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Clinical Neuroscience
<b>Sponsoring department or unit:</b>	Neurology
<b>Name of clerkship director:</b>	Albert Cuetter, MD

**Rotations**

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*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week clerkship that includes both inpatient and outpatient experiences as follows:

Outpatient (4-hours daily)

- General Neurology Clinic
- Parkinson Clinic
- Epilepsy Clinic
- Electrodiagnosis (EMG)
- Basis of Geriatric Medicine relevant to Neurology
- Headache Clinic

Inpatient (5 hours daily)

- General neurology
- Neurological complications of systemic diseases
- Stroke rounds
- Stroke rehabilitation
- Electrodiagnosis (EEG, Evoked Potentials)

**Clerkship Objectives**

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*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The primary purpose of the Clinical Neuroscience Clerkship offered in the MS IV year is to provide the medical student with the ability perform a neurological interview and examination, interpret signs, consolidate symptoms and signs into syndromes, accurately diagnoses neurological diseases, and identify appropriate evidence-based management strategies. The goals and objectives outlined below have been developed internally but are consistent with the neurology core curriculum developed by the Consortium of Neurology Clerkship Directors and the Undergraduate Education Subcommittee of the American

Academy of Neurology. The learning objectives of this clinical experience also reflect the medical school's institutional learning objectives (see ED-1, 1-A in Section II of the data base). The alpha-numeric codes associated with each of the objectives below indicates how this objective links back to broad institutional learning objectives.

*The following list of goals and objectives are illustrative and not exhaustive.* Clerkship syllabus will be available on-site.

### MEDICAL KNOWLEDGE

**Objectives:** The student will recognize the signs, symptoms and physical findings of neurological problems at the level of an MS IV, including the following (MK-1-4):

Stroke—by the conclusion of this clerkship, the student will be able to:

- Describe the different subtypes of strokes and their etiologies;
- Match the specific stroke syndromes with the occluded artery;
- List the major risk factors for stroke ;
- Describe treatment of acute stroke and prevention of recurrent stroke.

Epilepsy and Seizures—by the conclusion of this clerkship, the student will be able to:

- Differentiate between seizures, epilepsy, and syncope;
- Classify seizure sub-types and describe the clinical features associated with these sub-types;
- Identify appropriate treatment options for patients with epilepsy including conventional and new antiepileptic agents;
- Recognize common adverse events associated with medications for the management of epileptic disorders

Dementia-- by the conclusion of this clerkship, the student will be able to:

- Define and differentiate between dementia and delirium;
- Recognize clinical features and laboratory findings associated with different types of dementia;
- Generate appropriate differential diagnosis for patients presenting with cognitive problems

Neuromuscular diseases—by the conclusion of this clerkship, the student will be able to:

- Differentiate between upper motor neuron (UMN) and lower motor neuron (LMN) dysfunction;
- Describe usual clinical features and differential diagnosis of motor neuron disease;
- Discuss localization for peripheral sensorimotor disorders (e.g., radicular pain, mononeuropathy, paresthesia, etc.);
- Describe the pathogenesis, usual clinical presentation, workup, and treatment of myasthenia gravis.

Headaches—by the conclusion of this clerkship, the student will be able to:

- Differentiate primary and secondary headaches
- Discuss the distinctive clinical characteristics and epidemiology of migraine and its variations
- Outline a systematic approach to the management of patients with headache.

Movement disorders—by the conclusion of this clerkship, the student will be able to:

- Differentiate between hyperkinetic and hypokinetic movement disorders;
- Describe pathological and neurochemical features of idiopathic Parkinson's Disease;
- Describe clinical, pathological, and genetic features of Huntington's Disease;
- Discuss pharmacological options available for treatment of Essential Tremor and Parkinson's Disease.

### PATIENT CARE

**Objectives:** by the conclusion of this clerkship, the student will demonstrate the ability to:

- Obtain a complete and reliable history(ICS-2);
- Conduct a focused and reliable neurological examination (PC-4);
- Formulate a differential diagnosis based on lesion localization, time course, signs, symptoms, and relevant demographic features (PC-4,6);
- Interpret electrodiagnostic studies (EEGs, EMGs, nerve conduction studies), neuroimaging studies (CT, MRI), and common laboratory tests used in the diagnosis of neurological disease (PC-5);
- Formulate a plan for investigation and management of common neurological problems(PC-1);
- Discuss neurological manifestations of systemic diseases (MK-2).

### INTERPERSONAL AND COMMUNICATION SKILLS

**Objectives:** Throughout this clerkship students will demonstrate the ability to:

- Communicate effectively with families and patients; (ICS-1,3)
- Communicate effectively and respectfully with physicians, and other health professionals in order to share knowledge and discuss management of patients; (ICS-1)
- Present clear, concise, and thorough oral presentations of patient history and physical examination results; (ICS-2,3)
- Prepare clear, concise, and accurate written presentations of patient history and physical examination results, interpretation of laboratory and imaging studies, and plans for patient management (ICS-2, PC-4);

### PROFESSIONALISM AND ETHICS

**Objectives:** Throughout this clerkship students will demonstrate the ability to:

- Display sensitivity to patient and family concerns; (PROF-3, 5)
- Maintain confidentiality of patient care and values; (PROF-1, 5, 7)
- Manage personal biases in caring for patients of diverse populations and different backgrounds and recognize how these biases may affect care and decision-making; (PROF-2, 3, 5)
- Follow-through and comply with daily assignments.

### **PRACTICE BASED- LEARNING AND IMPROVEMENT**

**Objectives:** Throughout this clerkship students will demonstrate the ability to:

- Apply technology (e.g. PDA, PC, internet) in the acquisition and evaluation of Evidenced-Based Medical information (e-medicine, journals AAFP, NEJM, etc); (PBL-5)
- Accept feedback from the faculty and incorporate this to improve clinical practice.
- Critically assess the quality and utility of medical information based on sources and methodologies. (PBL-2)

### **SYSTEMS- BASED PRACTICE**

**Objectives:** Throughout the clerkship students will demonstrate the ability to:

- Advocate for patients and quality patient care; (PROF-9)
- Wisely utilize resources in patient care (e.g., efficiently use diagnostic and laboratory tests); (PC-5)
- Understand and utilize ancillary health services and specialty consultants properly. (SBP-2, PBL-3,4)

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. The goal of the neurology clerkship is to expose students to the scope of neurological practice with an emphasis on the neurological diseases and problems that are most commonly encountered in medical practice, regardless of specialty.

Students record their patient encounters and the procedures they perform in Op-log, an on-line electronic patient encounter log. Individual students' clinical experiences are reviewed at the mid-way point and end of the rotation with the course director to discuss the rotation experience. Every effort is made to provide students with "real patient" experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

*Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.*

The clerkship director is ultimately responsible for assuring that clinical experiences and other educational opportunities are available to meet clerkship requirements. If the student is not making satisfactory progress at the mid-point of the rotation, the clerkship director will assist the student through schedule adjustments or through alternative methods (e.g., online cases, special readings, simulations, case conferences, etc).

Academic Year: 2011-12

**Preparation for Teaching**

Attending faculty are oriented to the experience by the clerkship director and provided copies of the syllabus and evaluation forms that they will use to assess student performance.

*If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?*

At present we do not have a neurology residency and residents do not participate in student teaching in this clerkship.

*How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?*

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Clinical Neuroscience Clerkship
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

The clerkship director has ultimate responsibility for ensuring that student knowledge and core clinical skills are assessed in appropriate ways. In this clerkship, the following methods are employed:

- Direct observation of comprehensive neurological examination;  
All students complete at least 15 new patient evaluations. Students will use a supplementary form that contains information in the following topics: main findings in the physical examination, anatomic location of suspected lesion, diagnosis, and option of management. After the student's oral presentation, the neurologist will review the student's problem-solving process and discuss with the student the strengths and weaknesses of the presentation and workup. The student will receive immediate remediation. Also, the form will facilitate the evaluation of student's clinical competence;
- Review of 2 student write-ups. These write-ups will reflect the student's ability to conduct a sequenced history and physical examination, and produce a management plan;
- NBME Clinical Neurology examination;
- Completion of end-of-rotation performance rating form.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Faculty members supervising students complete a clinical assessment form documenting student performance (see Section II Appendix x).

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative comments required component of assessment.

**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Academic Year: 2011-12

We currently have a patient base that is fully adequate to provide students with a broad exposure to the diagnosis and management of patients with neurological problems.

Until recently, neurology and psychiatry at TTHUSC was a combined department. They have since been split into two departments. A search is underway for a chair and additional faculty are also being recruited. In the interim we have contracted with local community neurologists who are members of the voluntary faculty to assist us. We have the faculty resources necessary for meeting the needs of the class of 2013. We are confident that we will have the faculty resources in place to meet the needs of an expanding class in the years ahead.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

The clerkship director for neurology has several years experience in directing a successful neurology clerkship and electives. The curriculum is well developed. The patient population is adequate for a required experience in neurology.

*Challenges:*

The major challenge at this point is the small size of the neurology faculty. As noted above, a search is underway for a chair, and a short list of candidates is being interviewed. We are also recruiting for two new faculty members and have contracted with community faculty to assist us. This will enable us to deliver a quality educational experience for the 40 students in the charter class during the 2012-13 academic year. Once the chair has been hired, s/he will be expected to recruit several additional faculty members. The expanded department will be able to meet the needs of our growing class size.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Family Medicine Sub-Internship
<b>Sponsoring department or unit:</b>	Department of Family and Community Medicine
<b>Name of clerkship director:</b>	Charmaine Martin, MD/Jennifer Molokwu, MD

The acting internship in Family Medicine is a four week rotation on the inpatient service at University Medical Center coupled with a half-day weekly continuity clinic at the Family Medicine Clinic. The student will be an integral part of the inpatient team which consists of a family medicine attending, family medicine residents (PGY-1, PGY-2 and PGY-3) a PharmD and the inpatient ancillary staff (nursing, social workers and physical therapy). The student will be exposed to a broad spectrum of acutely ill patients. Student responsibilities include initial evaluation of patients; taking a detailed history and physical, selection of appropriate therapeutics, and presentation of the patient to the team and subsequent care during the patient's hospitalization. This includes family medicine patients admitted to the medicine, pediatric or labor and delivery floors.

### Rotations

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is largely an in-patient experience as described above. However, students will have a weekly continuity clinic (one half day per week) at the Family Medicine Clinic as listed below. This sub-internship will include the following clinical and learning activities:

- Morning rounds -consists of pre-rounds with the senior resident and then team rounds with the attending faculty. The student will finish any pending work; admit any new patients or consults. Hours are 6am to 6pm daily.
- Call schedule - mirrors the PGY-1 (6 am to 12 noon Saturdays and 10pm to 12 noon Saturday to Sunday every other week).
- Didactics- every Thursday afternoon students will attend family medicine conferences after student patients are appropriately transferred to covering afternoon resident.
- Students will have continuity with discharged inpatient service patients in a weekly continuity clinic at the Family Medicine Clinic. Students will be paired with the senior inpatient family medicine resident in clinic.

### Clerkship Objectives

*Are there written objectives for the clerkship?*

Yes	✓	No	
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Sub-internship objectives reflect the institutional learning objectives described in Section II, ED-1-A of this database. The alpha numeric code attached to the objectives described below shows the linkage between specific sub-internship objectives and institutional learning objectives.



*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The sub-internship objectives were developed internally and using national guidelines. The objectives are a modified versions of the ACGME competency based resident inpatient objectives.

**MEDICAL KNOWLEDGE:**

**Goal:**

The student will gain and develop an effective understanding in the assessments and management of the most common clinical conditions in Family Medicine in the inpatient and the outpatient setting. The learner will demonstrate the ability to acquire, critically interpret and apply this knowledge.

**Objectives:**

- Recognize the common ambulatory medical problems seen at a Family Medicine rotation which includes the evaluation and management of acute and chronic conditions such as (MK-2, 3):
  1. Diabetes
  2. Hypertension
  3. ACS
  4. Renal Failure (Acute and Chronic)
  5. Asthma
  6. Cardiac Arrhythmias
  7. COPD
  8. Community Acquired Pneumonia
  9. Heart Failure
  10. Delirium and Dementia
  11. Gastrointestinal Bleeding
  12. Hospital Acquired Pneumonia
  13. Pain management
  14. Peri-Operative medicine (Pre-Op evaluation)
  15. Sepsis syndromes
  16. Stroke
  17. UTI
  18. Thromboembolic Syndromes

Academic Year: 2011-12

19. Newborn care
20. Well Child Care
21. Adult Clinical Preventive Services

- The student will recognize and Interpret abnormal and critical laboratory results, abnormal chest radiograph and KUB Series. (MK-1, 2)
- Analyze and appraise the findings of an EKG including rate, rhythm, axis, presence or absence of AV blocks, ST segment changes, and arrhythmias. (MK-3)
- Classify the clinical elements of cardiovascular risk assessment using the ACC/AHA Guidelines for Pre-Op evaluation. (MK-3)
- Recognize and identify learner's limitation in the care of complicated cases and provide adequate referral for consultation of specialty care. (PBL-4)

### **PATIENT CARE:**

#### **GOAL:**

Develop recognition and effective integration of factors that contribute to optimal and compassionate family-centered care.

#### **OBJECTIVES:**

- Perform a complete History and Physical that includes all the patient elements: CC, HPI, PMHX, FHX, Social HX, ROS, Vital Signs, and physical findings. (PC-4)
- Create a differential diagnosis list for each case and select appropriate diagnostic tests.(PC-5, 6)
- Demonstrate a good professional relationship with the patient and his/her family. (IPS-1)
- Demonstrate efficiently the ability to care up to a cap of six patients.

### **INTERPERSONAL AND COMMUNCATON SKILLS:**

#### **GOAL:**

The student will develop knowledge of specific techniques and methods that facilitate effective and empathic communication between the learner, patients, faculty, colleagues, staff and systems.

#### **OBJECTIVES:**

- Appropriately utilize interpreters and communicate effectively with families who speak another language. (ICS-1)
- Communicate effectively and respectfully with physicians, and other health professionals in order to share knowledge and discuss management of patients.(ICS-1)
- Maintain professional and appropriate personal interaction with patients. (PROF-3, 5)
- Create the use of effective listening, verbal and writing skill to communicate with patients and member of the health care team. (ICS-1, 2)

### **PROFESSIONALISM:**

#### **GOAL:**

Reaffirm and understand value in the inclusion of high standard in professional an ethical practice and incorporate these provisions of optimal culturally sensitive patient care.

**OBJECTIVES:**

- Adopt and foster sensitivity to patient and family concerns. (PROF-3)
- Demonstrate confidentiality of patient care and values. (PROF-2, 4, 5)
- Manage personal biases in caring for patients of diverse populations and different backgrounds and how these biases may affect care and decision-making. (PROF-7, 9)
- Follow-through and comply with daily assignments.
- Respect the psychosocial aspect of the patient in the decision making process. (PROF-7)

**PRACTICE-BASED LEARNING AND IMPROVEMENTS:**

**GOAL:**

Understand the application of scientific evidence and accept feedback for continuous self-assessment in the improvement of patient care.

**OBJECTIVES:**

- Demonstrate the use electronic technology (eg. PDA, PC, Internet) for evaluating Evidence-Based Medical information (e-medicine, journals AAFP, NEJM, etc). (PBL-2, 3, 5, 7)
- Accept feedback from the faculty and incorporate this to improve clinical practice.

**SYSTEM-BASED PRACTICE:**

**GOAL:**

Develop an appreciation of supportive health care resources, and understand their utilization as part of patient advocacy.

**OBJECTIVES:**

- Advocate for families, such as recent immigrants to a developed country, who need assistance to deal with system complexities, such as lack of insurance, multiple appointments, transportation, and language barrier. (SBP-1, PROF-9)
- Demonstrate efficient use of diagnostic testing. (SPB-2, MK-3, PC-5)
- Understand and utilize ancillary health services and specialty consultants properly. (SPB-2)
- Advocates for quality patient care. (SPB-2, PROF-9)

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for sub-internship experiences in family medicine.

Students will record their patient encounters and the procedures they perform in the on-line electronic patient encounter log (Op-log). Individual students' clinical experiences are reviewed at the mid-way point and end of the rotation with the course director to discuss the rotation experience. Every effort will be made to provide students with "real patient" experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

Academic Year: 2011-12

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

**Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the Sub-I director and provided copies of the syllabus and evaluation (to be completed mid way and at the end of the rotation) forms that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

All residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. The Sub-I director will meet with the residents serving as teachers and supervisors to review the goals, objectives, and assessment criteria. In addition, each resident will be provided copies of the Family Medicine Sub-I syllabus. The attending faculty for the inpatient service and the Sub-I directors will also re-orient residents to the Sub-I syllabus, evaluation and teaching strategies.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Family Medicine Sub-Internship
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*Methods for Evaluating Clerk Performance*

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Student performance will be assessed by supervising faculty members and senior residents. Each sub-intern will be given a mid-rotation formative assessment to identify strengths and areas for further growth and development. The final grade will be determined by the sub-internship director based upon the evaluations provided by those with sufficient contact with the student to render judgment on student performance.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others)*

Attending family medicine physicians, senior residents, and the Sub-I director contribute to the final evaluation of student performance.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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All students receive written narrative feedback.

*Clerkship Outcomes/Evaluation*

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

There is adequate full-time faculty to cover family medicine inpatient service year round. The inpatient service is covered for the entire year by family medicine attendings. We also have a PharmD who rounds daily. Resources are adequate for this Sub-Internship.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

This is a new course being offered to students. The opportunity to offer the students an inpatient experience with family medicine is a success. We have not had a fourth year. The student evaluations will be based on the ACGME and PLFSOM competencies.

*Challenges:*

It is sometimes difficult to predict the family medicine inpatient census. There are some months that we have fewer patients. We will need to have enough patients for the residents and the students to have a good experience. We will plan to address the low census, should it occur, by admitting patients without a primary care physician and within our zip code catchment area. We also have hip fracture service. We admit patients with hip fractures and perform preoperative clearance and manage them after surgery.

**PART C. REQUIRED CLERKSHIP FORM**

<b>Clerkship title:</b>	General Surgery Sub-Internship
<b>Sponsoring department or unit:</b>	Department of Surgery
<b>Name of clerkship director:</b>	Susan E. McLean, MD

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week, inpatient experience.

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally*

**MEDICAL KNOWLEDGE**

- Describe in detail the normal anatomy of the abdomen including its viscera and anatomical spaces. (MK-1)
- Compare and contrast normal variation and pathological states in the structure and function of the abdominal viscera. (MK-2)
- Describe analytic methods (laboratory, imaging, evidence-based medicine principles) and apply them in the care of the surgical patient. (MK-3)

**PATIENT CARE**

- Understand, describe, and assist in the various therapeutic methods for the management of surgical illness and disease. (PC-1)
- Identify life-threatening conditions in the peri-operative management of the surgical patient that require immediate and specific interventions. (PC-2)
  - These life-threatening conditions include but are not limited to: myocardial infarction, pulmonary embolism, systemic inflammatory response syndrome (SIRS), sepsis, cardiovascular shock.
- Provide precise, timely, and comprehensive patient care that is documented appropriately. (PC-3)
- Perform and accurately record findings and observations derived from physical examinations. (PC-4)

- Choose appropriate laboratory tests and/or diagnostic procedures and accurately interpret results. (PC-5)
  - This would include interpretation of liver function tests, coagulation profiles, abdominal ultrasounds, computerized tomography, and intra-operative cholangiography.

### **INTERPERSONAL AND COMMUNICATON SKILLS**

- Communicate clearly, respectfully, and compassionately with patients, families, colleagues, and members of the health care team. (ICS-1).
  - As part of this learning objective, the student will be able to obtain consent for surgery from patients. He or she will be able to disclose the risks and benefits of the various surgical procedures performed by the team, as well as to answer the patient's questions.
- Collect and record pertinent elements of the clinical history in a concise and accurate manner. (ICS-2)
- Communicate knowledge, interpretation and recommendations orally and/or in writing to a wide range of professional or lay audience. (ICS-3)
  - As part of this learning objective, the student will be required to give one 20 minute case presentation on a surgical patient during one of the Surgery Residency's weekly didactic sessions.

### **PROFESSIONALISM**

- Display compassion in interactions with all patients regardless of race, gender, ethnicity, sexual orientation, socioeconomic status and disability. (Prof-3)
- Apply the highest ethical standards in all professional activities. (Prof-4)
- Demonstrate respect for the beliefs, opinions and privacy of patients, families, and members of the health care team. (Prof-5)
- Demonstrate scrupulous honesty in all professional matters. (Prof-6)
- Preserve the patient's dignity in all interactions. (Prof-8)
- Demonstrate advocacy for the interests and needs of patients. (Prof-9)

### **PRACTICE BASED LEARNING**

- Recognize when to take responsibility and when to seek assistance based on one's position in the surgical team. (PLB-4)
- Demonstrate sophistication in the use of digital resources for patient care, self-education, and the education of patients and their families. (PLB-5)
  - Assistance and participation in the weekly General Surgery Morbidity and Mortality Conference, the monthly Trauma Morbidity and Mortality Conference, and the monthly Multidisciplinary Trauma Morbidity and Mortality Conference.
- Demonstrate the application of a scheme inductive approach to arrive at a focused differential diagnosis. (PLB-6)
  - Demonstrate self-awareness and the skills necessary for life-long learning. (PLB-7)



### **SYSTEM BASED PRACTICE**

- Describe the components of the national health system and its funding, and how this affects the surgical patient's health. (SBP-2)
- The student will be required to attend the nursing floor case management and discharge meetings.

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for a sub-internship experiences in general surgery and also reflect 30 years of institutional experience providing an elective sub-internship experience as a regional campus of TTUHSC Lubbock School of Medicine before the accreditation of the Paul L. Foster School of Medicine as an independent medical school. The director for the third year surgery clerkship and the sub-internship director (Drs. Morales Gonzalez and Dr. McLean) also met to review the goals, objectives, and patient care expectations of each experience to reach decisions about appropriate expectations for a sub-internship experience.

Students record their patient encounters and the procedures they perform in the on-line electronic patient encounter log (Op-log). Individual students' clinical experiences are reviewed at the mid-way point and end of the rotation with the course director to discuss the rotation experience. Every effort is made to provide students with "real patient" experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

*Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.*

The clerkship the sub-internship director is responsible for ensuring that each student's clinical experience is appropriate to meet the objectives of the clerkship. If a student is not making satisfactory progress in meeting clerkship expectations for clinical experiences, that student will meet with the clerkship director to discuss possible reasons for not meeting expectations and solutions to aid the student in achieving appropriate learning objectives.

### **Preparation for Teaching**

There is a twice yearly meeting with faculty members regarding clerkship learning objectives and the evaluation system. The sub-internship director also maintains close contact with faculty participating in this experience. She reviews goals, objectives, and assessment criteria with all faculty members supervising students. Furthermore, faculty attending are provided access to the surgery sub-internship syllabus.

*If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?*

Academic Year: 2011-12

Residents are required to participate in a “Residents as Teachers” program that is administered by the Office of Graduate Medical Education. In addition, Residents are given the clerkship learning objectives and have complete access to the sub-internship syllabus. Residents are also oriented to their role as evaluators of student performance and oriented to the assessment form used to evaluate sub-interns.

*How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?*

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	General Surgery Sub-Internship
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Core clinical skills will be assessed primarily through observations of students interacting with patients, and review of student patient-write-ups and case presentations. The Sub-I director schedules mid-rotation feedback with each acting intern.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Attending faculty, residents working with the acting intern, and the sub-I director contribute to the evaluation of each student with whom they have sufficient contact to render an informed judgment. The sub-I director reviews all assessments on each student and completes the final evaluation upon which the final grade (Honors/Pass/Fail) is determined.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Faculty, patients, and resources (including simulation) are adequate to meet the learning objectives for the clerkship.

Resources available to the students include:

- The University Medical Center of El Paso, a teaching hospital which is also a Level One Trauma Center.
- The Texas Tech Surgery Clinic, located on the hospital/academic center campus.
- The University Breast Cancer Center, also on Campus.

Academic Year: 2011-12

Learning areas for didactics include:

- Classrooms in the Paul L. Foster School of Medicine Medical Education Building.
- Classrooms in the Texas Tech Health Sciences Center Administration building.
- Classrooms and auditoriums in the Texas Tech Clinic building.
- Conference rooms available in the University Medical Center.
- The Paul L. Foster School of Medicine simulation center.

Opportunities for learning by seeing patients at University Medical Center and the Texas Tech Clinics are adequate to meet clerkship learning objectives.

Computer resources are available in the TTUHSC libraries. In addition, the TTUHSC library and TTUHSC website can be accessed 24 hours a day, 7 days a week. The library resources for surgery students include several textbooks, the web based surgical manual, and access to numerous databases for literature searches. There are also online journal resources.

Other resources for students include student call rooms available at the hospital. There are adequate work areas in every area of patient care for writing history and physical exams. There are computers at hospital work areas for students to access patient information and imaging studies.

***Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.***

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

***Identify major successes in the clerkship and challenges to be overcome.***

The PLFSOM year 4 courses are only now being implemented. We do not anticipate major problems being able to provide students with a quality sub-I experience in surgery. We will monitor student experiences through student evaluations and use this information as appropriate for continuing quality improvement.

***Successes:***

- As a regional clinical campus in the TTUHSC School of Medicine system, the Department of Surgery has considerable experience in offering a Sub-Internship experience.

***Challenges:***

- At present the department is relatively small and getting assessments completed in a timely fashion will require constant monitoring by the Sub-I director, the clerkship coordinator, and the Office of Curriculum, Evaluation, and Accreditation. Several new faculty members are scheduled to join the department over the summer of 2012. This will expand our educational capacity.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Obstetrics and Gynecology Sub-Internship Experience
<b>Sponsoring department or unit:</b>	Obstetrics and Gynecology
<b>Name of clerkship director:</b>	Harvey Greenberg, MD

This is a 4 week experience that meets the year 4 requirement that students must complete a Sub-I.

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

The following are the required rotations for the Obstetrics and Gynecology Sub-Internship Experience:

- Labor and Delivery 25%
- Benign Gynecology 25%
- Gynecologic Oncology 25%
- Obstetrics 25%

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The following objectives were developed internally with national guidelines from the American College of Obstetricians and Gynecologists (ACOG) and the Association of Professors of Gynecology and Obstetrics (APGO). They are consistent with PLFSOM institutional objectives.

1. The student will participate in the intraoperative care of the patient.
2. The student will participate in the perioperative care of the patient.
3. The student will be able to discuss common post-operative complications and their management.
4. The student will participate in team care of selected patients including presenting the patient on rounds, and writing SOAP notes.
5. The student will participate in the evaluation of gynecology patients in the ED
6. The student will triage, admit, and manage a laboring patient.
7. The student will be able to discuss gestational diabetes and disorders of blood pressure in pregnancy.
8. The student will be able to discuss common post partum and post cesarean section complications.
9. The student will observe the interaction and flow of patients and provider in a private office setting.

10. The student will complete a focused obstetrical and/or gynecological history and physical exam and present patient information and pertinent findings.
11. The student will develop an inclusive differential diagnosis for each obstetrical and gynecological problem.
12. The student will be able to formulate a complete plan.

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?***

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for sub-internship experiences in OB-GYN set forth by ACOG and APGO.

Students will record their patient encounters and the procedures they perform in the on-line electronic patient encounter log (Op-log). Individual students' clinical experiences are reviewed at the mid-way point and end of the rotation with the course director to discuss the rotation experience. Every effort is made to provide students with "real patient" experiences to meet clinical objectives. If this is not possible, alternatives in the form of specified readings, computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

#### **Preparation for Teaching**

Attending faculty and residents (see below) are oriented to the experience by the Sub-I director and provided copies of the syllabus and evaluation forms that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. In addition, residents are provided copies of the Medical Student Sub-I syllabus with particular emphasis on goals, objectives, and assessment methods and criteria.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Obstetrics and Gynecology Sub-Internship Experience
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

The following are the methods used to evaluate students' core clinical skills:

- Direct observation by the faculty/residents
- Evaluation of written patient histories and SOAP notes

Students must be supervised by faculty/residents to perform procedures on patients. All patients must be presented to a faculty and/or resident physician.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

The following evaluate each sub Intern:

- Full time and Part time faculty
- Resident physicians
- Clerkship Director

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative comments are required for all students as part of the assessment process.

**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Currently, there are full time and part time faculty participating in the teaching of the Sub Internship Clerkship. We will also provide volunteer clinical faculty should the student want an additional site for

Academic Year: 2011-12

rotations. There is an adequate patient population for the additional rotating sub Intern, as well as enough resources from the core clerkship rotation to support sub Interns.

***Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.***

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available. Evaluation data will be used to monitor the quality of the experience and to make improvements as needed.

***Identify major successes in the clerkship and challenges to be overcome.***

This is a new sub-internship experience that is being offered for the first time in the 2012-13 academic year.

***Successes:***

Include:

- OB/GYN Residents are strong examples of a typical OB/GYN residency program
- Diverse patient population provides real world examples of extensive OB/GYN pathology
- Faculty teach medical students on a one on one basis
- Adequate time to study and prepare for step exams
- Flexibility in scheduling daily rotations

***Challenges:***

Include:

- Scheduling students will require attention to an ever changing departmental schedule
- Scheduling students to avoid conflicting core medical students' schedule



<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Internal Medicine Sub-Internship
<b>Sponsoring department or unit:</b>	Department of Internal Medicine
<b>Name of clerkship director:</b>	Jose D. Burgos, MD

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week, inpatient experience based at the University Medical Center of El Paso. The student has to evaluate and follow up patients hospitalized in the general medicine ward and the telemetry unit and admit the patients directly from the Emergency room.

Clinical duties: 6hrs / day

Lectures (Morning reports / Noon conferences): 2 hrs/ day

Workshops: 6-8 hrs /week

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The goals and objectives of the sub-internship in internal medicine are consistent with the curriculum developed by the Clerkship Directors in Internal Medicine Sub-Internship Taskforce (<http://www.im.org/Resources/Education/Students/Learning/CDIMsubinternshipCurriculum/Pages/default.aspx>) and also reflect the Paul L. Foster School of Medicine Institutional Learning Goals and Objectives described in ED-1, 1-A of the database. Alpha-numeric codes attached to objectives listed below link institutional objectives and IM sub-internship objectives.

**PATIENT CARE OBJECTIVES:**

- a) Demonstrate proficiency in coordinating a comprehensive and longitudinal patient care plan (PC-3)
- b) Use paper or electronic references to access evidence based medicine to solve clinical problems (PBL-2, 5)
- c) Prioritize tasks for daily patient care in order to efficiently utilize time
- d) Systematically organize daily tasks

- e) Describe the indications, contraindications, risks, and benefits of each of the following procedures (PC-5):
  - i) Venipuncture
  - ii) Intravenous catheter insertion
  - iii) Arterial blood sampling
  - iv) Nasogastric tube insertion
  - v) Lumbar puncture
  - vi) Urethral catheter insertion
  - vii) Endotracheal intubation
  - viii) Paracentesis
- f) Explain how the information obtained from these procedures will enhance the patient's care (PC-5)
- g) Describe potential procedure related risks to the operator and the need for universal precautions
- h) Perform, with supervision, the above procedures safely and in keeping with current guidelines (PC-4)
- i) Write a procedure note that documents indications, risks, and results (PC-4, ICS-2)
- j) Ensure that the samples obtained are properly prepared for laboratory processing

**MEDICAL KNOWLEDGE OBJECTIVES;**

The student will recognize and describe the appropriate evaluation and management of (MK-2,3):

- a) Abdominal Pain
- b) Acute gastrointestinal bleeding
- c) Acute pulmonary edema
- d) Acute renal failure
- e) Altered mental status
- f) Arrhythmias
- g) Chest pain
- h) Drug withdrawal
- i) Electrolyte disorders
- j) Fever
- k) Glycemic control
- l) Hypertensive emergencies
- m) Nausea and vomiting
- n) Pain management
- o) Respiratory distress
- p) Seizures
- q) Shock

**INTERPERSONAL AND COMMUNICATION SKILLS OBJECTIVES:**

- a) Communicate effectively with physician and non-physician members of the health care team and consultants in a manner that demonstrates the ability to (ICS-1,2,3):
  - i) Clearly summarize the patient's reason for admission and rationale for clinical plan
  - ii) Clearly and concisely present oral and written summaries of patients to members of the health care team with attention to the inclusion of relevant information and synthesis of clinical information
  - iii) Achieve proper transfer of care throughout a patient's hospitalization including end of day and end of service coverage
  - iv) Contact members of the health care team, consultants, and other hospital personnel
  - v) Demonstrate an understanding of the importance of communicating with the patient's primary care physician (PCP) if the inpatient attending is different from the PCP
  - vi) Communicate plan with an outpatient health care provider, arranging for follow-up when appropriate
  - vii) Negotiate conflict
  - viii) Document in an organized and efficient manner: admission notes, daily progress notes, transfer notes, on-call emergencies, and discharge summaries
- b) Communicate effectively with patients and patient's family members by showing the ability to (ICS-1):
  - i) Utilize lay terms appropriate to the patient's level of education and explain scientific jargon
  - ii) Recognize and manage denial and grief
  - iii) Communicate abnormal results and "bad news" to patients in a sensitive manner
  - iv) Discuss adverse events with patients
  - v) Discuss end of life issues with patients and family members with attention to the patient's wishes and needs
  - vi) Initiate a conversation with a patient about advanced directives and documenting a Do Not Resuscitate order.
  - vii) Assess patients' decisional capacity to provide informed consent for a procedure or intervention
  - viii) Provide concise daily updates for patients and families regarding hospital course and rationale for ongoing or new treatment plans

**PROFESSIONALISM OBJECTIVES:**

- a) Demonstrate compliance with local and national ethical and legal guidelines governing patient confidentiality in both written documentation and verbal communication with the patient's family members (Prof-1)

- b) Show respect for, and a willingness to, assist all members of the health care team (ICS-1)
- c) Demonstrate respect for patient's rights to confidentiality (Prof-4)
- d) Address cultural sensitivities and patient wishes with regards to health care and incorporate this knowledge into discussions with the patient (Prof-3)
- e) Show respect for patient autonomy and the principle of informed consent (Prof-4)
- f) Demonstrate concern for maximizing patient comfort (Prof-9)

**PRACTICE-BASED LEARNING AND IMPROVEMENT OBJECTIVES:**

- a) Determine the level of skill or proficiency in performing procedures (PBL—3,4)
- b) Demonstrate a commitment to learning how to perform procedures in an efficient and cost-effective manner (PBL 7)

**SYSTEM-BASED PRACTICE OBJECTIVES:**

- a) Demonstrate the ability to work effectively with physician and non-physician members of the health care team including nursing staff, physician assistants and nurse practitioners, social workers, therapists (occupational, physical), pharmacists, nutrition support staff and discharge planners.(SBP-2)
- b) Access the clinical information system in use at the site of health care delivery (e.g. hospital or clinic).
- c) Define “panic values” and describe the methods used for their communication from the hospital laboratory to the responsible intern.
- d) Incorporate resources available in the inpatient and outpatient setting for the management of grief in patient care (SBP-2)
- e) Coordinate care plan, utilizing community resources when necessary (SBP-1,2)

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?***

The patient conditions and procedural skills expected of students are based on the learning objectives and competencies described above. These are consistent with national guidelines for sub-internship experiences in internal medicine and also reflect our nearly 40 years of institutional experience providing an elective sub-internship experience as a regional campus of TTUHSC Lubbock School of Medicine before the accreditation of the Paul L. Foster School of Medicine as an independent medical school.

Students will record their patient encounters and the procedures they perform in the on-line electronic patient encounter log. Individual students' clinical experiences are reviewed at the mid-way point and end of the rotation with the course director to discuss the rotation experience. Every effort will be made to provide students with “real patient” experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The course director is responsible for reviewing student progress in meeting the sub-internship objectives. Exploration of a problem will begin as soon as it is suspected to exist. Steps taken if a student is not making satisfactory process include:

- 1) Determine the precise problem (knowledge, skills or attitudes) to be addressed
- 2) Determine the method that may be useful to help learners address the problem:
  - Personal one-to-one assessment of knowledge and skills deficits by attendings or resident teachers
  - Clinical case discussions
  - Assignment of additional reading to provide a clearer knowledge foundation, with subsequent discussions of the reading
  - Assigned exercises such as time in clinical skills lab, extra patient assignments, etc.
  - Recommendations about time management or organizational skills
  - Referrals to other sources of help if it appears that the student has personal problems that interfere with efforts to study or evidence of learning disabilities
  - Involve the student in the design and assessment of the intervention

If a student is not making a satisfactory progress in meeting course expectations for clinical experiences, he/she is reminded of the objectives during the mid-rotation evaluation. Otherwise, objectives may usually be completed through interactive case studies during scheduled/master clinical educator sessions.

### **Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the Sub-I director and provided copies of the syllabus and evaluation forms that they will use to assess student performance. This information is disseminated electronically and in writing to all faculty and residents each year.

Faculties are also given personal feedback by the clerkship director explaining the clinical evaluation process for students, and evaluation forms include directions. Issues regarding the student program are also discussed at faculty meetings as needed. Most of the communication between the clerkship director and the supervising physicians is electronic, although the course director regularly “touches base” with all supervisors. Paul L. Foster School of Medicine offers faculty development programs in Teaching Skills and Curriculum Development. These courses are available to all faculty.

Students fill out detailed course evaluations at the end of each clerkship. These are reviewed by the course director each month, and the results disseminated to faculty as above.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Academic Year: 2011-12

Residents are required, as part of their training and orientation, to function as teachers. All residents participate in a “Residents as Teachers” program that is administered by the Office of Graduate Medical Education. In addition, each resident is provided copies of the Medical Student Sub-I syllabus with particular emphasis on goals, objectives, and assessment methods and criteria.

Attending physicians are encouraged to evaluate residents as teachers as part of their educations.

*How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?*

At present all instruction and clinical activity related to this experience occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Internal Medicine Sub-Internship
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*Methods for Evaluating Clerk Performance*

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Direct observation by faculty, observation by residents and structured observation by faculty. The students are provided with a unique opportunity to evaluate and follow up their own patients since the very admission until the discharge under the direct supervision of the senior resident and the attending physician. By doing this we allow the resident to have more responsibility over their patients acting as an intern.

The supervising physicians have the ability to observe and evaluate the student in every area including:

- Professionalism
- Medical knowledge
- Practice based learning
- System based practice
- Interpersonal and Communication skills
- Patient care

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

- Full time faculty (Attending physician)
- Senior residents.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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A narrative is required for all student assessments in this sub-I experience.

*Clerkship Outcomes/Evaluation*

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Faculty resources and patient volume are adequate to meet the objectives of this clinical experience.

The supervising faculty to sub-I ratio is 1:1, allowing prompt and direct feedback from the attending physician.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

***Successes:***

- Quality and diversity of patient experiences readily available to student will provide an excellent opportunity for students to gain an appreciation of the role of an intern in Internal Medicine.
- Developing plans for procedures workshops in conjunction with the Emergency Medicine clerkship.

***Challenges:***

- The primary challenge that remains to be overcome is in standardizing the clinical experience and ensuring that students receive adequate bedside teaching but with our personalized supervision this should not be an issue.
- Students often have difficulty seeing all the types of patients that they should, and it is difficult to give them the opportunity to participate meaningfully in critical care. Possible solutions to this problem include use of standardized patients for the common pathologies not seen during the rotation and/or oral exam exercises.



<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Inpatient Pediatrics Sub-internship
<b>Sponsoring department or unit:</b>	Pediatrics
<b>Name of clerkship director:</b>	Blanca Ivette Garcia, MD

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week general pediatrics inpatient experience that meets the PLFSOM Sub-Internship requirement at El Paso Children's Hospital.

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

This sub-internship experience provides a problem oriented rotation for students to help them develop a systematic approach to the hospitalized pediatric patient. The student will develop basic skills for evaluation and management of acute and some chronic illnesses in children. The effects of family dynamics will be addressed as will child advocacy.

The objectives for the pediatrics sub-internship are organized around the six core competencies implemented by the ACGME and meeting the LCME ED-1-A standard. PLFSOM Institutional objectives indicated by alpha-numeric codes below.

**MEDICAL KNOWLEDGE**

**Objectives:** Recognize the signs, symptoms, physical findings of common pediatric problems including but not limited to the following (MK-1,2,3, 4):

- Growth and Development
- Behavior
- Nutrition
- Injury Prevention
- Medical genetics and dysmorphology
- Common acute pediatric illness/common pediatric complaints

Academic Year: 2011-12

- Common chronic illness and disability
- Therapeutics
- Fluids and electrolytes management
- Pediatric emergencies
- Child Abuse

**PATIENT CARE OBJECTIVES:**

- Demonstrate skills at the MS IV level in evaluating, diagnosing, managing and determining the appropriate disposition of pediatric patients. (PC-1,2,3, 4,5)
- Determine which patients can be managed in a general inpatient setting and which require higher levels of care and expertise in a critical care unit although they will not manage critical care patients. (PC-2)
- Demonstrate the ability to develop differential diagnoses, plan diagnostic studies, and formulate and implement therapeutic options and plans for discharge. (PC-6)

**INTERPERSONAL AND COMMUNCATON SKILLS OBJECTIVES**

Students will demonstrate the ability to:

- Communicate effectively with families and patients. (ICS-1)
- Appropriately utilize interpreters if necessary to communicate with non-English speaking patients. (ICS-1)
- Communicate effectively and respectfully with physicians, and other health professionals in order to share knowledge and discuss management of patients. (ICS-3)
- Maintain professional and appropriate personal interaction with patients. (ICS 1,3)
- Use effective listening, verbal and writing skill to communicate with patients, families, and member of the health care team.(ICS-1,2)
- Treat faculty, residents, staff, and fellow students with respect and courtesy. (ICS-1)

**PROFESSIONALISM/ETHICS OBJECTIVES:**

Students will:

- Demonstrate sensitivity to patient and family concerns. (PROF-3, 5, 7)
- Display tolerance for parent and patient differences in culture, beliefs, attitudes, and lifestyle.(Prof-7)
- The ability to manage personal biases in caring for patients of diverse populations and different backgrounds and recognize how these biases may affect care and decision-making. (PROF 3,7)
- Demonstrate respect for patient privacy and confidentiality. (Prof-1, 5)
- Following through with professional obligations and the timely completion of assigned tasks and duties.

Academic Year: 2011-12

- Demonstrate an ability to advocate for patient needs. (Prof-9)

**PRACTICE BASE LEARNING AND IMPROVEMENTS OBJECTIVES:**

Students will:

- Demonstrate the use electronic technology (e.g., PDA, PC, and internet) for accessing and evaluating Evidenced-Based medical information (e-medicine, journals AAFP, NEJM, Pediatrics, etc.). (PBL-3, 5)
- Accept feedback from the faculty and incorporate this to improve clinical practice.(PBL-4)

**SYSTEM BASED PRACTICE OBJECTIVES (SBS-1,2):**

Students will:

- Utilize diagnostic testing and imaging resources effectively and efficiently.
- Demonstrate the ability to appropriately utilize consultants/subspecialists.
- Utilize ancillary health services and specialty consultants properly.

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The types of clinical conditions and procedural skills that students will be exposed to reflect the pediatric in-patient population of the El Paso Children's Hospital and the region. Student will be assigned to patients and learning experiences that are consistent with the overall goals and objectives of the Pediatric Sub-Internship selective, where the student will assume the role of the extern.

The student, under the supervision of the senior resident will follow and average of 2-4 patients a day and be responsible for a complete workup including

- History and Physical exam
- Lab orders and results
- Meds orders
- Consultation orders and follow-ups
- Daily progress notes
- Discharges

Night call schedule, activities, and procedures will be coordinated with the senior resident in the ward. Pertinent reference material will be provided and literature searches will be encouraged.

The individual students' clinical experience will be reviewed midway through the rotation and at the end of the rotation. The Sub-Internship director, faculty attending and/or the senior resident will provide supervision and feedback.

If a student is not meeting clinical objectives, the clerkship director will take appropriate steps to assure satisfactory completion. This may involve discussions with the faculty and residents supervising the

student, making adjustments to the schedule, or assigning the student an alternative means of meeting the objectives. Every effort will be made to provide students with “real patient” experiences. If this is not possible, alternatives in the form of computerized cases, high fidelity simulation, and/or standardized patient encounters will be employed.

*Who is responsible for ensuring that each student’s clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.*

**Preparation for Teaching**

The clerkship director is responsible for ensuring that each student’s clinical experiences are appropriate to meet the rotation objectives. The clerkship director conducts a mid-clerkship review with each student based upon the patient encounter log, faculty, resident, and staff feedback, student write-ups, and observed histories and physical examinations. If a student is not making satisfactory progress, a remediation plan appropriate to meet the student’s deficiency would be developed.

*If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?*

All residents are required to participate in a “Residents as Teachers” program that is administered by the Office of Graduate Medical Education. In addition, each resident will be provided copies of the Medical Student Sub-I syllabus with particular emphasis on goals, objectives, and assessment methods and criteria. Finally, the Sub-I clerkship director will meet with residents and be available to them throughout the rotation to answer questions, review roles and responsibilities, and criteria for assessing student performance.

*How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?*

At present all instruction and clinical activity related to this experience occurs at one site, El Paso Children’s Hospital. The Sub-Internship Director meets with supervising faculty to inform them of the goals and objectives of the clerkship. They also have access to the syllabus. Evaluation criteria are also discussed. It should be noted that most faculty for the Sub-Internship also participate in the year 3 required clerkship and therefore have a foundation on which to build for their participation in the education of fourth year students.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Inpatient Pediatrics Sub-Internship
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*Methods for Evaluating Clerk Performance*

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students? [Please respond to this item.]*

**CLINICAL EVALUATIONS**

Written evaluations of each student are solicited from all faculty and residents who have had sufficient contact with the student. Standard evaluation forms developed by Paul L Foster School of Medicine are used.

**DIRECT OBSERVATION:**

To determine competency in history taking and physical examinations, each student is directly observed taking a history and performing a physical examination of a child on the ward. Grading of these activities is done with evaluation forms. A student who performs poorly on these exercises will not be considered to have satisfactorily completed the course. Remediation and reevaluation will be at the discretion of the ward attending and Clerkship Director.

**MEDICAL RECORDS**

Students will be expected to write proficient histories, physical examinations and progress notes. Notes should be well organized and adequately reflect findings (historical, physical, laboratory, etc.), assessment, and plan. Students will learn how to write orders in the electronic medical record. All student documentation will be reviewed and cosigned by faculty and/or residents. The quality of a student written records will be considered in the clinical evaluations.

**ADMISSION HISTORIES AND PHYSICAL EXAMINATIONS**

On inpatient services (Histories and Physicals) are expected to be thorough and complete and follow the recommended outline/format. During the clerkship each student is to submit copies of two admission notes for formal evaluation and grading.

**CASE PRESENTATIONS**

Students must be able to present in a variety of situations- attending rounds, inpatient service, case conferences, morning report, etc

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others*

The final clinical evaluation of each student will be compiled by the attending faculty or clerkship director using the evaluations of the attending faculty and residents who directly observed and had sufficient contact with the student.

Not Applicable.

<b>Year</b>			
<b>Score</b>			

Academic Year: 2011-12

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

Yes	<input checked="" type="checkbox"/>	No	
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*Clerkship Outcomes/Evaluation*

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

Faculty and resident numbers are adequate to supervise students selecting pediatrics for their Sub-I experience. Patient numbers are also adequate. Please note that in February, 2012, the new 150+ bed El Paso Children's Hospital officially opened. This is resulting in increasing numbers of pediatric patients and a wider spectrum of illnesses for our students to be exposed to as part of this clinical learning experience.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

TBD

*Challenges:*

Accommodating more than a few students at a time will be a challenge. Currently there is one "team" on the hospital ward. If more than a few students want to rotate at once, this may be difficult. Fortunately three additional faculty have already been recruited as hospitalists and are scheduled to begin between July and September of 2012. This will allow us to accommodate more students if needed. We will also have some flexibility in scheduling as not every fourth year student will select pediatrics as to fulfill their sub-internship experience.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Critical Care Selective (MICU)
<b>Sponsoring department or unit:</b>	Department of Internal Medicine
<b>Name of clerkship director:</b>	Jose D. Burgos, MD

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week rotation in the Medical Intensive Care Unit of University Hospital, El Paso. It meets the fourth year critical care requirement at the PLFSOM. Students will spend an average of 8 (Eight) hours per day participating in the care of patients admitted to this unit.

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

The educational goals and objectives were developed internally and in consultation with guidelines provided by the Society for Critical Care Medicine. The educational objectives of this selective have been “mapped” on to the PLFSOM institutional learning objectives (see ED-1-A in data base) and are summarized below.

**MEDICAL KNOWLEDGE****GOALS:**

Each medical student will be instructed by Critical Care Faculty on relevant patient care issues requiring medical knowledge and on the application of basic science information to issues frequently encountered in critically ill patients. These include (MK 1-4):

- Airway anatomy and its impact on airway management of critically ill patients including mask ventilation, and intubation.
- Subsets of shock including cardiogenic, hypovolemic and septic.
- Blood gas interpretation.
- Identification and management of respiratory compromise/failure.
- Fluid and electrolyte management of ICU patients.
- In addition, students will complete web based learning modules found at the Society for Critical Care Medicine Web Site.
- Identification of common findings in the chest X-ray of a critically ill patient.

**OBJECTIVES:**

Upon completion of the Critical Care rotation, each medical student will demonstrate to a Critical Care faculty member or designated individual that the student understands and is proficient in the goals by:

- Providing a written list of a minimum of 3 criteria that identify each of the subsets of shock (cardiogenic, hypovolemic and septic).
- Interpreting and discussing a minimum of 1 blood gas test results of a patient while on rounds with the ICU team.
- Providing a plan of fluid and electrolyte management for a minimum of 1 patient to be shared with the ICU team while on rounds.

**PATIENT CARE (PC1-6)**

**GOALS:**

Medical students will be introduced to complex medical patients with critical illnesses requiring extensive monitoring and dynamic management. The goal is for each student to (PC 1-6):

- Be responsible for understanding his or her patients' medical conditions throughout the student's rotation.
- Provide appropriate treatment and examination studies of his or her patients in conjunction with the ICU team.
- Have exposure to invasive monitoring techniques including central venous access and arterial lines.
- Presenting to the faculty and resident pertinent patient's data in an organized and understandable manner.

**PROFESSIONALISM (PROF—1-9)**

**GOALS:**

- Medical students will be expected to arrive in a timely fashion for all weekday rounding activities in the ICU.
- Adequate preparation of patient information prior to rounds.
- ICU rounds are often long and extensive, appropriate behavior and attentiveness is expected throughout the experience on a daily basis.
- OBJECTIVES:
- Medical students will be present and prepared a minimum of 10 minutes prior to rounds on each day
- All relevant laboratory data, X-ray, CT and MRI results must be presented to the ICU team by the medical student for those patients that s/he is following.

**PRACTICE BASED LEARNING AND IMPROVEMENT(PBL—1-7)**

**GOALS:**

- While on their Critical Care rotation, each medical student will be instructed as to the use of the relevant ICU checklist while on service.(PBL--
- Students will be instructed and educated about the Ventilator Associated Pneumonia (VAP) bundle and its application to critically ill patients.



**OBJECTIVES:**

- Students will be expected to apply the ICU checklist to their patients while on service.
- Midway through the rotation, the students will be expected to engage in an educated discussion with the Critical Care Faculty regarding the VAP bundle.

**SYSTEMS-BASED PRACTICE (SBP—1-2)**

**GOALS:**

Medical students will learn:

- The importance of discharge planning for ICU patients and local resources that are available
- The criteria requiring ICU admission
- The VAP bundle and its global impact on patient care.

**OBJECTIVES:**

- Each student will be expected to provide a written discharge plan for at least one patient.
- Students will be given sample cases of patients and will be expected to justify or deny ICU admission based on provided criteria. This will be discussed with the relevant ICU team members.
- Satisfactory completion of the VAP bundle self-directed module posttest will be required of all students completing their rotation in ICU and will be reviewed by the attending ICU faculty

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

During the 4-week rotation, the medical student will be exposed to a variety of patients with complex medical conditions requiring extensive intervention and management.

The students will be exposed to the wide variety of patients admitted to the unit. They will be able to assess the patients since the moment of admission and follow them during the MICU stay.

The MICU senior resident, who is already trained to work with medical students, will be able to coordinate and distribute the patients according to level of complexity and relevance to the rotation curriculum. The MICU faculty, during daily rounds, will assess the medical student's experience by direct supervision and interaction, assuring that the objectives are being met.

*Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.*

The selective director is responsible for ensuring that each student is being exposed to appropriate clinical experiences. The selective director will meet with the student at the beginning of the rotation to review the selective syllabus and to discuss expectations and procedures. The selective director will also meet with the student at the beginning of each succeeding week to review their patient care experiences. The selective director will devise a strategy for addressing deficiencies. In rare circumstances it may be

Academic Year: 2011-12

necessary to assign students computerized cases, simulations, or special readings to achieve objectives that are not being met through actual patient care

**Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the MICU selective director and provided copies of the syllabus and evaluation form that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents will be required, as part of their training and orientation, to function as teachers. All residents are required to participate in a “Residents as Teachers” program that is administered by the Office of Graduate Medical Education. In addition, each resident will be provided copies of the Medical Student MICU syllabus with particular emphasis on goals, objectives, and assessment methods and criteria.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this critical care selective occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Critical Care Selective: MICU
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*Methods for Evaluating Clerk Performance*

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Daily patient encounters will function as the primary modality for instruction and evaluation of core clinical skills in addition to bedside interaction, presentation for each student. In few occasions we may use simulator experiences.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

Critical care faculty, Internal medicine Senior resident (PGY-3) , PGY 1 and/or 2 on the team.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative comments included on all student evaluations.

*Clerkship Outcomes/Evaluation*

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

There will be a minimum of 3 full time faculty engaged in medical student education.

The MICU of the University Medical Center of El Paso has 32 beds that are shared with the Surgical ICU and has an overflow system of beds that are shared with the Cardiovascular ICU.

In a regular MICU rotation, one or two Faculty are assigned to supervise the MICU team. The MICU team is conformed by two shifts, the morning shift has a senior resident and two interns and the night shift is conformed by one senior resident and one intern. The medical student will work intermittently both shifts to allow a broad and complete exposure to the MICU experience.

A fully staffed and supported state-of-the-art simulator center is available at the Paul Foster School of Medicine and can be utilized to support the development of student skills during their participation in the critical care selective experience.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

***Successes:***

- The success of the Medical Intensive care unit selective is the quality and diversity of the clinical experience. As a border town, we are exposed to wide and interesting variety of diseases and conditions particular to the area.
- The students will have the opportunity to take care of their own patients assuming the role of the intern. This not only provide a better scenario for evaluation but also provides the student with the “real” situation they will encounter after graduation giving them more comfort and security before starting their residency training.

***Challenges:***

- The primary challenge that remains to be overcome is in standardizing the clinical experience and ensuring that students receive adequate bedside teaching but with our personalized supervision this should not be an issue.
- Students often have difficulty seeing all the types of patients that they should, and it is difficult to give them the opportunity to participate meaningfully in critical care. Possible solutions to this problem include use of standardized patients for the common pathologies not seen during the rotation and/or oral exam exercises.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Critical Care (Selective): Cardiovascular Critical Care Unit (CVICU)
<b>Sponsoring department or unit:</b>	Department of Internal Medicine
<b>Name of clerkship director:</b>	Debabrata Mukherjee, MD/Omosalewa Lalude MD

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week rotation in the Cardiovascular Intensive Care Unit of University Hospital, El Paso. It meets the fourth year critical care requirement at the PLFSOM. Students will spend an average of 6 hours per day participating in the care of patients admitted to this unit.

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

Each fourth year medical student of the Paul Foster School of Medicine (PLFSOM) will be required to complete a 4 week rotation in one of four possible critical care units of the University Medical Center of El Paso: Surgical Intensive Care, Medical Intensive Care, Pediatric Intensive Care, and Cardiovascular Intensive Care. Student will be allowed to indicate their preferences and full consideration will be given to this selection based upon space availability. During the 4 week rotation, the medical student will be exposed to a variety of patients with complex medical conditions requiring extensive intervention and management.

The educational goals and objectives were developed internally and in consultation with guidelines provided by the American College of Cardiology. The educational objectives of this selective have been “mapped” on to the PLFSOM institutional learning objectives (see ED-1-A in data base) and are summarized below.

**MEDICAL KNOWLEDGE****GOALS:**

Each medical student will be instructed by Cardiology Faculty on relevant patient care issues requiring medical knowledge and on the application of basic science information to issues frequently encountered in critically ill cardiac patients. These include:

Academic Year: 2011-12

- Knowledge in the management of cardiology critical care patients in as wide a breadth as possible of clinical cardiac pathology.
- Proficiency in the interpretation of hemodynamic findings at the bedside in the CVICU and how these findings are applied in the management of patients with hemodynamic compromise.
- Understand the mechanisms by which intraaortic balloon counterpulsation exerts a beneficial physiologic effect, as well as the function of an intraaortic balloon console; for the most part, insertion of the intraaortic balloon catheter will be accomplished on the cath lab rotation.
- Acquire knowledge of the function of implantable cardioverter-defibrillators.
- Acquire knowledge of the function of automatic external defibrillators and be able to act a resource to the public regarding the function of these devices.

**OBJECTIVES:**

Upon completion of the Cardiology rotation, each medical student will demonstrate to a Cardiology faculty member or designated individual that the student understands and is proficient in the goals by:

- completing a minimum of 1 supervised patient evaluation
- providing a written list of a minimum of 3 criteria that identify each of the subsets of shock (cardiogenic, hypovolemic and septic)
- interpreting and discussing a minimum of 1 blood gas test results of a patient while on rounds with the CVICU team
- providing a plan of management for a minimum of 1 patient to be shared with the CVICU team while on rounds

**PATIENT CARE**

**GOALS:**

Medical students will be introduced to complex cardiac patients with critical illnesses requiring extensive monitoring and dynamic management. The goal is for each student to:

- be responsible for understanding his or her patients' medical conditions throughout the student's rotation
- provide appropriate treatment and examination studies of his or her patients in conjunction with the CVICU team
- have exposure to invasive monitoring techniques including central venous access and arterial lines
- develop an appreciation for the intensive, around-the-clock patient care needs
- experience and participate in end-of-life ethical issues, including the potential for organ procurement

**OBJECTIVES:**

To achieve the goals, each student will:

- be responsible for a minimum of 2 patients throughout their rotation; S/he and write daily CVICU notes and present the patients during daily rounds

Academic Year: 2011-12

- be responsible for providing a minimum of 1 extensive treatment plan for a newly admitted CVICU patient, including examination studies
- be expected to follow up on all ordered laboratory values and examination studies as they pertain to the student's patients
- have an opportunity to observe the insertion of at least 1 CVP and 1 a-line in a patient
- participate in the 1 in 7, 24 hour call cycle, with a required minimum of 3 calls in 4 weeks
- participate in lecture-formatted didactic sessions addressing end of life issues.

## **INTERPERSONAL AND COMMUNICATIONS SKILLS**

### **GOALS:**

Management of critically ill cardiac patients requires a team approach involving multiple levels of communication. Medical students will:

- learn the appropriate format for presenting patient information on rounds.
- practice communicating treatment plans with critical care patients
- initiate communication with family members of patients regarding treatment plans and outcomes
- learn to verbally transfer care daily.

### **OBJECTIVES:**

- During daily rounds, medical students will present their patients in the expected and accepted format. This will be assessed by the rounding Critical Care faculty.
- Students will be expected to communicate treatment plans with a minimum of 2 patients in the CVICU while under direct observation of the CVICU faculty member.
- Each medical student will be expected to initiate conversation on at least 2 occasions with family members and will be observed and assessed by the attending ICU faculty member
- Cardiology faculty will evaluate and provide feedback for at least 1 verbal transfer of care by a medical student to the on call team.

## **PROFESSIONALISM**

### **GOALS:**

- Medical students will be expected to arrive in a timely fashion for all weekday rounding activities in the CVICU
- Adequate preparation of patient information prior to rounds
- CVICU rounds are often long and extensive, appropriate behavior and attentiveness is expected throughout the experience on a daily basis

### **OBJECTIVES:**

- Medical students will be present and prepared a minimum of 10 minutes prior to rounds on each day
- All relevant laboratory data, X-ray, CT and MRI results must be presented to the ICU team by the medical student for those patients that s/he is following.

Academic Year: 2011-12

- Acquire skill in the nuances of informed consent: obtaining informed consent is not always easy for the medical professional and never for the patient.

### **PRACTICE BASED LEARNING AND IMPROVEMENT**

#### **GOALS:**

- While on their CVICU rotation, each medical student will be instructed as to the use of the relevant CVICU checklist while on service.
- Students will be instructed and educated about the Acute Coronary syndrome order set and its application to critically ill patients.

#### **OBJECTIVES:**

- Students will be expected to apply the CVICU checklist to their patients while on service.
- Midway through the rotation, the students will be expected to engage in an educated discussion with the Critical Care Faculty regarding the Acute Coronary syndrome (ACS) order set.
- Cardiology practice time management skills.

### **SYSTEMS-BASED PRACTICE**

#### **GOALS:**

Medical students will learn:

- the importance of discharge planning for CVICU patients and local resources that are available
- the criteria requiring CVICU admission
- the ACS order set and its global impact on patient care.

#### **OBJECTIVES:**

- Each student will be expected to provide a written discharge plan for at least one patient
- Students will be given sample cases of patients and will be expected to justify or deny CVICU admission based on provided criteria. This will be discussed with the relevant CVICU team members.
- Satisfactory completion of the ACS order set will be required of all students completing their rotation in CVICU and will be reviewed by the attending CVICU faculty.

*Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?*

The members of the cardiology division of the Department of Internal Medicine arrived at a list of the clinical conditions that students should encounter based on prior experience and the goals/objectives of the selective. Student clinical activity will be reviewed on an ongoing basis to ensure that students receive an appropriate range of experiences. This will be facilitated by the fact that there will be a limited number of students participating in this selective at any one time.



***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The selective director is responsible for ensuring that each student is being exposed to appropriate clinical experiences. The selective director will meet with the student at the beginning of the rotation to review the selective syllabus and to discuss expectations and procedures. The selective director will also meet with the student at the beginning of each succeeding week to review their patient care experiences. The selective director will devise a strategy for addressing deficiencies. In rare circumstances it may be necessary to assign students computerized cases, simulations, or special readings to achieve objectives that are not being met through actual patient care

**Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the NICU selective director and provided copies of the syllabus and evaluation form that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents will be required, as part of their training and orientation, to function as teachers. All residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. In addition, each resident will be provided copies of the Medical Student CVICU syllabus with particular emphasis on goals, objectives, and assessment methods and criteria.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity related to this critical care selective occurs at one site, University Medical Center of El Paso.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	CVICU Rotation
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

Simulator experiences will function as the primary modality for instruction and evaluation of core clinical skills in addition to bedside interaction, presentation for each student. Weekly written evaluations by supervising faculty will be required to be submitted to the clerkship director.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

There will be a minimum of 5 full time faculty engaged in medical student education. In addition Internal medicine residents rotating through CVICU and Cardiology fellows will contribute to final clinical evaluation of the clerk.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	✓	<b>No</b>	
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Narrative comments are a required component of student assessment.

**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

There will be a minimum of 5 full time faculty engaged in medical student education. Patient volume is sufficient for this selective experience.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

The PLFSOM is in the process of implementing its fourth year curriculum and CVICU rotation. This data is not yet available.

*Successes:*

- TBD

*Challenges:*

- TBD

<b>PART C. REQUIRED CLERKSHIP FORM</b>	
<b>Clerkship title:</b>	Critical Care Selective
<b>Sponsoring department or unit:</b>	Surgery
<b>Name of clerkship director:</b>	Susan F. McLean, MD

**Rotations**

*Total length of clerkship in weeks*

4 weeks
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List the required rotations that will be part of the clerkship, and the average amount of time to be spent in each (if there are variations across sites, provide a range).

Surgical Intensive Care

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	<b>X</b>	No	
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*Briefly describe or summarize the objectives for the clerkship. Are they taken from or based on objectives established by national organizations, or developed internally?*

Each fourth year medical student of the Paul Foster School of Medicine (PLFSOM) will be required to complete a 4 week rotation in one of four possible critical care units of the University Medical Center of El Paso: Surgical Intensive Care, Medical Intensive Care, Pediatric Intensive Care, and Neurological Intensive Care. Student will be allowed to indicate their preferences and full consideration will be given to this selection based upon space availability. During the 4 week rotation, the medical student will be exposed to a variety of patients with complex medical conditions requiring extensive intervention and management.

The educational goals and objectives were developed internally and in consultation with guidelines provided by the Society for Critical Care Medicine. The educational objectives of the Surgical ICU selective have been “mapped” on to the PLFSOM institutional learning objectives (see ED-1-A in data base) and are summarized below.

**MEDICAL KNOWLEDGE**

**GOALS (MK 1-3):**

Each medical student will be instructed by Critical Care Faculty on relevant patient care issues requiring medical knowledge and on the application of basic science information to issues frequently encountered in critically ill patients. These include:

**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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- airway anatomy and its impact on airway management of critically ill patients including mask ventilation, intubation, and surgical airway management.
- subsets of shock including cardiogenic, hypovolemic and septic
- blood gas interpretation
- identification and management of respiratory compromise/failure
- fluid and electrolyte management of ICU patients.
- In addition, students will complete web based learning modules found at the Society for Critical Care Medicine Web Site.

**OBJECTIVES:**

Upon completion of the Critical Care rotation, each medical student will demonstrate to a Critical Care faculty member or designated individual that the student understands and is proficient in the goals by:

- completing a minimum of 1 supervised mask ventilation, intubation either on a mannequin or patient.
- The student will assist with surgical airway management at least once. The student will list pre-op qualifications for tracheostomy.
- providing a written list of a minimum of 3 criteria that identify each of the subsets of shock (cardiogenic, hypovolemic , obstructive, and distributive or septic shock.)
- interpreting and discussing a minimum of 10 blood gas test results of a patient while on rounds with the ICU team
- providing a plan of fluid and electrolyte management for a minimum of 5 patients to be shared with the ICU team while on rounds
- Listing the criteria for the definition of Systemic Inflammatory Response Syndrome, Sepsis, Severe Sepsis and Septic Shock as defined by the Society of Critical Care Medicine

**PATIENT CARE**

**GOALS:**

Medical students will be introduced to complex medical patients with critical illnesses requiring extensive monitoring and dynamic management. The goal is for each student to:

- be responsible for understanding his or her patients' medical conditions throughout the student's rotation (PC-1)
- Be responsible for daily notes on his/her patients (PC-3, ICS-1)
- provide appropriate treatment and examination studies of his or her patients in conjunction with the ICU team (PC-5)
- have exposure to invasive monitoring techniques including central venous access and arterial lines (PC-1)
- identifying SIRS, Sepsis, or Septic Shock when present in a patient, or a patient simulation. (PC-2)\_

**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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**OBJECTIVES:**

To achieve the goals, each student will:

- be responsible for a minimum of 2 patients throughout their rotation; S/he and write daily ICU notes and present the patients during daily rounds
- be responsible for providing a minimum of 1 extensive treatment plan for a newly admitted ICU patient, including examination studies
- be expected to follow up on all ordered laboratory values and examination studies as they pertain to the student's patients
- have an opportunity to observe the insertion of at least 1 CVP and 1 a-line in a patient
- have 1 opportunity to insert 1 CVP and 1 a-line in a mannequin or patient
- participate in both day shifts and night shift during the rotation.
- participate in lecture-formatted didactic sessions addressing end of life issues, including organ procurement, presented by Southwest Organ Transplant, OR round on and write notes on at least one patient being considered for organ donation.

**INTERPERSONAL AND COMMUNICATIONS SKILLS**

**GOALS (ICS 1-3):**

Management of critically ill patients requires a team approach involving multiple levels of communication. Medical students will:

- learn the appropriate format for presenting patient information on rounds.
- practice communicating treatment plans with critical care patients
- initiate communication with family members of patients regarding treatment plans and outcomes
- learn to verbally transfer care daily.

**OBJECTIVES:**

- During daily rounds, medical students will present their patients in the expected and accepted format. This will be assessed by the rounding Critical Care faculty.
- Students will be expected to communicate treatment plans with a minimum of 2 patients in the ICU while under direct observation of the ICU faculty member
- Critical Care faculty will evaluate and provide feedback for at least 1 verbal transfer of care by a medical student to the on call team.
- Each medical student will participate in a meeting with family members as an observer.

**PROFESSIONALISM**

**GOALS:**

- Medical students will be expected to arrive in a timely fashion for all weekday rounding activities in the ICU (Prof-9)
- Adequate preparation of patient information prior to rounds (Prof-9)

**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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- ICU rounds are often long and extensive, appropriate behavior and attentiveness is expected throughout the experience on a daily basis (Prof-9)
- experience and participate in end-of-life ethical issues, including the potential for organ procurement (Prof-1)

**OBJECTIVES:**

- Medical students will be present and prepared a minimum of 10 minutes prior to rounds on each day
- All relevant laboratory data, X-ray , CT and MRI results must be presented to the ICU team by the medical student for those patients that s/he is following.

**PRACTICE BASED LEARNING AND IMPROVEMENT**

**GOALS (PBL--1-7):**

- While on their Critical Care rotation, each medical student will be instructed as to the use of the relevant ICU checklist while on service.
- Students will be instructed and educated about the Ventilator Associated Pneumonia (VAP) bundle and its application to critically ill patients.
- The student will understand Joint Commission “Core Measures” and their applicability to ICU patients.

**OBJECTIVES:**

- Students will be expected to apply the ICU checklist to their patients while on service.
- Students will fill out the core measures section of the SICU note daily, including exceptions to the application of core measures.
- Midway through the rotation, the students will be expected to engage in an educated discussion with the Critical Care Faculty regarding the VAP bundle.
- Students will be expected to be able to order appropriate Deep Venous Thrombosis Prophylaxis and to note when this must be omitted.

**SYSTEMS-BASED PRACTICE**

**GOALS: (SBP-2):**

Medical students will learn:

- the importance of discharge planning for ICU patients and local resources that are available
- the criteria requiring ICU admission
- 
- The challenges of discharge planning for the medically underserved patient.

**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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**OBJECTIVES:**

- Each student will be expected to provide a written transfer summary for at least one patient.
- Students will be given sample cases of patients and will be expected to justify or deny ICU admission based on provided criteria. This will be discussed with the relevant ICU team members.
- Students will attend at least 2 SICU discharge planning meetings.

*Describe the process that was used to define the kinds of patients, clinical conditions, or procedural skills, and the clinical settings for such experiences, that are needed to meet the clerkship objectives. At what point during the clerkship will individual students' clinical experiences be reviewed to assure that objectives are being met, and who will conduct that review?*

Critical Care Faculty from the fields of Surgery and Neurosurgery were actively engaged in the creation and development of the curriculum. The clinical setting for this rotation is dictated by the nature of the rotation and is limited to the aforementioned critical settings. The acquisition of medical skills will be assessed weekly via a simulator experience conducted and observed by the clerkship director or designee. In addition the Society of Critical Care Medicine's recommendations for undergraduate education were reviewed.



**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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*Who will be responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student is not making satisfactory progress in meeting clerkship expectations for clinical experiences.*

The clerkship director is responsible for ensuring the student's clinical experiences meet the objectives. The clerkship director will evaluate each student's progress on a weekly basis. In the event a student is making unsatisfactory progress, the clerkship director will meet individually with the student and develop tailored plans for remediation.

**Preparation for Teaching**

*If resident physicians will teach in the clerkship or otherwise supervise medical students, how will they informed about the clerkship objectives and prepared for their teaching role?*

Residents will be required, as part of their training and orientation, to function as teachers. All residents are required to participate in a Residents as Teachers Program that is administered by the Office of Graduate Medical Education. In addition, each resident will be provided with copies of the Medical Student Critical Care Curriculum with particular emphasis on goals, objectives, and assessment methods and criteria.

*How will faculty members across instructional sites be oriented to the clerkship objectives and the evaluation system?*

All faculty members will be Paul Foster School of Medicine Faculty and will function from two sites, University Medical Center of El Paso and El Paso Children's Hospital. Each will receive copies of the curriculum, goals and objectives. The critical care selective clerkship director will meet with participating faculty to review program expectations.

**Methods for Evaluating Clerk Performance**

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*What methods will be used in the clerkship to evaluate students' core clinical skills? How will you ensure that such evaluation occurs for all students?*

Simulator experiences will function as the primary modality for instruction and evaluation of core clinical skills in addition to bedside interaction, presentation for each student. Weekly written evaluations by supervising faculty will be required to be submitted to the clerkship director.

*Will a narrative evaluation of student performance be submitted in addition to or as a component of the clerkship grade?*

**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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Yes	x	No	
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**Clerkship Outcomes/Evaluation**

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*Comment on the anticipated adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

There will be a minimum of 10 full time faculty and two part-time faculty engaged in medical student education. Volunteers will include individuals from Southwest Organ Transplant. For pediatric surgical ICU patients, these patients are housed in the El Paso Children’s Hospital. Rounds are conducted daily in conjunction with the pediatric critical care attending. These attending are on the faculty of Texas Tech University Health Sciences Center and actively teach residents and students. Neurosurgeons who are on the faculty also participate in teaching in the Surgical ICU, when neurosurgical patients are present.

Current patient accommodations include :

1. Approximately 32 medical and surgical intensive care beds
2. Approximately 4 Neurological intensive care beds
3. A 20 bed Pediatric ICU which is housed in the El Paso Children’s Hospital. Multidisciplinary rounds of pediatric trauma, neurosurgical, and pediatric general surgical patients are held here.
4. Emergency Department. In surgery, especially trauma surgery, critical care begins in the Emergency Department.

A fully staffed and supported state-of-the-art simulation center is available at the Paul Foster School of Medicine and will be utilized to support the development of student skills during their participation in the critical care selective experience.

Other personnel who are involved in teaching in the Surgical ICU include a professor of Pharmacy, who rounds 2-3 times per week with the team, and ICU dietician, and also respiratory therapy. Nursing personnel aide in teaching with regards to monitoring devices and other aspects of care. These same individuals also participate in teaching in the Fundamentals of Critical Care Support course, a multi-disciplinary course for post-graduate medical personnel.

There are two areas set aside for didactic teaching in the surgical ICU: a conference room with a computer and a large computer presentation screen, and also a smaller conference room with 3 computers which have access to both University Medical Center and also PLFSOM, for library access 24-7.

There is a printed syllabus which has learning objectives, patient care algorithms, as well as readings on all aspects of patient care. This Syllabus is given to all MS-IV’s rotating in the SICU.

**REQUIRED CLERKSHIP FORM** (Continued)

<b>Clerkship title:</b>	<i>Critical Care Selective: SICU</i>
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*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

- Excellent resources and busy, Level 1, trauma program.
- To be determined based on evaluation data and faculty experience.

*Challenges:*

- Balancing clinical responsibilities with educational responsibilities. We have provided successful elective experiences in the past and can draw upon this experience with students selecting SICU for their CCU rotation.
- To be determined based on evaluation data and faculty experience.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Critical Care (Selective): Neonatal Intensive Care
<b>Sponsoring department or unit:</b>	Department of Pediatrics
<b>Name of clerkship director:</b>	Merle Ipson, MD

**Rotations**

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week rotation in the Neonatal Intensive Care Unit of Children's Hospital of El Paso. It meets the fourth year critical care requirement at the PLFSOM. Students will spend an average of 8-10 hours per day participating in the care of patients admitted to this unit.

**Clerkship Objectives**

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

During the 4 week rotation, the medical student will be exposed to a variety of neonatal patients with complex medical conditions requiring extensive intervention and management.

The neonatal intensive care objectives were adapted internally based on those competencies required for pediatric training by ACGME and using Neonatal Intensive Care pediatric intern curriculum as a guide in the formulation of these objectives. The learning goals and objectives of this critical care selective also reflect the PLFSOM Institutional learning objectives as indicated in the codes attached below:

**Course Goals:****Patient Care**

- Goal: Students, together with supervising faculty must be able to provide patient care that is compassionate and effective for the treatment of problems associated with the critically ill newborn. The student should be responsible for gathering essential and accurate information about their patients and follow and understand his or her patients' medical conditions throughout the rotation. (PC 1-6, ICS-1, Prof-7)

## Objectives:

- Follow a minimum of 2 critically ill patients in the level III nursery daily, writing daily notes and presenting his or her patients during rounds each day. When the patients are transferred to the level II nursery for convalescence they should continue to follow them until discharge while acquiring additional level III patients.
- Participate in the call cycle with the team's senior resident, attending high risk deliveries during this call and staying to present her or his patients on rounds, (average 7 calls per month).

- Learn to obtain a complete maternal/family history, perform a physical examination on preterm and at-risk term neonates, and assessing the pattern of fetal growth, nutritional status and well-being of the preterm and term neonate after birth.
- Make informed recommendations about diagnostic and therapeutic interventions based on physical examination, physiologic monitors, laboratory data, best medical evidence, and clinical judgment. Examples: Neonates with perinatal asphyxia, complications of prematurity.
- Together with the attending, communicate plan of care to the parents. Example: Plan of care for mechanical ventilation.
- Work with health care professionals, including those from other disciplines, to provide patient-focused care, develop and carry out patient management plans. Examples: Obstetric team, respiratory care, nutritionists, pharmacology, nursing, social services and rehabilitation.

### **Medical Knowledge**

Goal: Students must demonstrate knowledge about established biomedical and clinical sciences and the application of this knowledge to the care their patients. They must understand the approach to establishing a differential diagnosis in the sick neonate.(MK 2-4, PBL-6)

Objectives:

- Demonstrate understanding of the normal transition process occurring at birth, and how these are modified in preterm and ill term birth and how these changes in the term or preterm neonate results in specific disease processes.
  - Learn pulmonary transition in the normal term infants versus preterm infant and the effect of disease on this transition.
  - Learn cardiovascular transition immediately after birth and short term in the normal term infant versus the preterm and the effect of sepsis or asphyxia on the immediate and short term transition.
  - Learn to evaluate and manage fluid and electrolytes in the preterm and ill term neonate during the first 72 hours of life.
- Understand the principles of neonatal resuscitation and stabilization including the ethical dilemmas in decision making in the delivery room and the role of prenatal counseling at prior to birth.
  - Become skilled at bag and mask ventilation in the term and preterm infant via simulation.
- Understand the varying patterns of fetal growth, postnatal problems associated with abnormal fetal growth (SGA, IUGR and LGA), and how to meet the nutritional needs of the preterm neonate in order to promote postnatal growth.
- Understand the role and purpose of intensive care for the neonate, the short and long-term ethical, societal and philosophical concerns, and the reason to obtain and assess ongoing data of outcome.

### **Practice-Based Learning and Improvement**

Goal: Students must be able to assimilate scientific evidence and improve their patient care practices. (PBL1-7)

Objectives:

- Find and study evidence from scientific studies related to their patient's medical problems. Example: Randomized controlled trials of therapy for Hypoxic Ischemic Encephalopathy.
- Use information technology to manage information, access on-line medical information; and support each students own education.

### **Interpersonal and Communication Skills**

Goals: Students will be able to demonstrate interpersonal and communication skills that result in effective information exchange with Neonatal Intensive Care, Newborn Nursery, and Labor and Delivery team members and patient families.(ICS 1-3)

Objectives:

- Give clear, concise, well-organized presentations on rounds, exchange patient information effectively with members of the care team and participate in rounds during other patient presentations.
- Learn to transfer care
- Explain critically ill patient's problems and treatments in lay person's terms to parents, ensuring their comprehension of their infant's illness.

### **Professionalism**

Goals: Students must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. This includes timely arrival for each student's own patient evaluation and preparation prior to presentation for rounds and arriving to participate on rounds, remaining attentive to all patient presentations by the other team members and participating in discussions about patient care. (Prof 1-8)

Objectives:

- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and their families that supersedes self-interest; accountability to patients and the profession, and a commitment to excellence and on-going professional development. Example; willingness to seek additional patients for evaluation.
- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care and confidentiality of patient information.
- Demonstrate sensitivity and responsiveness to patients' and/or their family's culture, age, gender and disabilities.

### **Systems-Based Practice**

Goals: Students must demonstrate how to practice quality health care and learn to become advocates for their patients within the Neonatal Intensive Care environment. (SBP-2)

Objectives:

- Understand the criteria for attending high risk deliveries and criteria for admission to the neonatal intensive care nursery.
- Discuss the importance of reducing errors and infections in the critical care area and identify mechanisms for reducing errors and nosocomial infections.
- Learn the importance of initiating early discharge planning and participate in the discharge planning of at least one of his or her patients.

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review.***

The Department of Pediatrics' Neonatology faculty was involved in the creation and development of the curriculum. The clinical setting for this rotation is dictated by the nature of the rotation and limited to the aforementioned critical care setting. The acquisition of medical skills will be assessed weekly via clinical and simulation experience conducted and/or observed by the neonatology faculty. The students will be expected to attend high-risk deliveries whenever possible and learn the basics of neonatal resuscitation and stabilization. They will attend parents counseling sessions with the neonatologist covering that rotation as the L&D attending in order to learn more about this aspect of care of the high-risk pregnancy.

The students will attend the following scheduled conferences:

- Neonatology lectures/Journal club/case presentations – 1<sup>st</sup>, 3<sup>rd</sup> & 4<sup>th</sup> Friday at 12:00-13:00
- OB/Pediatrics Morbidity and Mortality Conference – 2<sup>nd</sup> Friday 12:00-13:00
- Pediatric Didactic Lectures – Wednesday afternoons from 12:30-16:30
- Pediatric Grand Rounds – 1<sup>st</sup> Wednesday of each month 0800-0900.
- Pediatric Morning Report – Monday and Thursday at 0800-0830 (when patient assignment allows).
- Discharge Planning Rounds – Every Tuesday at 1130-1200.
- High Risk Conference with Perinatology – 2<sup>nd</sup> & 4<sup>th</sup> Tuesday at 1200-1300.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The NICU clerkship director/and faculty attending are responsible for ensuring that each student is being exposed to appropriate clinical experiences. The clerkship director will meet with the student at the beginning of the rotation to review the selective syllabus and to discuss expectations and procedures. The clerkship director and/faculty attending will also meet with the student at the beginning of each succeeding week to review their patient care experiences. In rare circumstances it may be necessary to assign students computerized cases, simulations, or special readings to achieve objectives that are not being met through actual patient care.

#### **Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the NICU clerkship director and provided copies of the syllabus and evaluation form that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents will be required, as part of their training and orientation, to function as teachers. All residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. In addition, each resident will be provided copies of the Medical Student NICU syllabus with particular emphasis on goals, objectives, and assessment methods and criteria.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

Academic Year :2011-12

At present all instruction and clinical activity occurs in the Children's Hospital of El Paso, University Medical Center Newborn Nursery and University Medical Center Labor and Delivery. Each faculty member will receive copies of the curriculum, goals and objective. The neonatal intensive care clerkship director will meet with participating faculty to review program expectations before the start of each student's rotation.



**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Critical Care (Selective): Neonatal Intensive Care
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

The student will be evaluated on their participation in rounds, the adequacy of their patient care, their understanding of the pathophysiology of the disease that their patients have, and the quality of their progress notes. Clinical skills (initiation of neonatal resuscitation/airway management) will be assessed by simulation. Weekly written evaluations by supervising faculty will be required and submitted to the clerkship director. Grades are pass/fail/honors and there is no final examination.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

There will be a minimum of 4 full time neonatology faculty and 1 part-time neonatology faculty as well as 5 pediatric hospitalists covering at night that will be engaged in medical student education. There are 2-3 second year pediatric residents and 2-3 pediatric/family practice interns on rotation each month.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Required for all students.

**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

There are over 3,600 deliveries per year at University Medical Center with the Department of Obstetrics' Perinatology Division delivering much of their high risk patients at University Medical Center.

Current Patient accommodations include:

1. 24 Level III neonatal intensive care beds.
2. 26 Level II neonatal intensive care beds.

Academic Year :2011-12

3. 16 Labor and Delivery rooms, 8 ante-partum rooms and 3 obstetric operating rooms.

Neonatal resuscitation equipment and mannequins are present in the call rooms to place in the nursery for simulation experiences.

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

*Successes:*

- Experienced faculty with many years of experience educating fourth year students.

*Challenges:*

- Initiation and evaluation of a new curriculum.

<b>PART C. REQUIRED CLERKSHIP FORM</b>
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<b>Clerkship title:</b>	Critical Care (Selective): Pediatric Intensive Care Unit
<b>Sponsoring department or unit:</b>	Department of Pediatrics
<b>Name of clerkship director:</b>	Jorge G. Sainz MD

Rotations

*List the required rotations that are part of the clerkship and the average amount of time spent in each (if there are variations across sites, provide a range).*

This is a 4 week rotation in the Pediatric Intensive Care Unit of El Paso Childrens Hospital. It meets the fourth year critical care requirement at the PLFSOM. Students will spend an average of 8-12 hours per day participating in the care of patients admitted to this unit.

Clerkship Objectives

*Are there written objectives for the clerkship?*

Yes	✓	No	
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*Briefly describe or summarize the objectives for the clerkship. Were they taken from or based on objectives established by national organizations or were they developed internally?*

During the 4 week rotation, the medical student will be exposed to a variety of pediatric patients with complex medical and surgical conditions requiring extensive intervention and management.

The pediatric intensive care objectives were adapted internally based on those competencies required for pediatric training by ACGME and using Pediatric Intensive Care pediatric resident curriculum as a guide in the formulation of these objectives. These goals and objectives of this selective are consistent with the PLFSOM learning objectives as indicated below.

**Course Goals:**Patient Care

- Goal: Students, together with supervising faculty must be able to provide patient care that is compassionate and effective for the treatment of problems associated with the critically ill pediatric patient. The student should be responsible for gathering essential and accurate information about their patients and their families, and follow and understand his or her patients' medical conditions throughout the rotation. (PC1-6, ICS-1, Prof-7)

## Objectives:

- Follow a minimum of 2-4 critically ill patients in the Pediatric Intensive care unit daily, writing daily notes and presenting his or her patients during rounds each day. Participate in the call cycle with the team's senior resident, integrating along with admission, discharges, and other procedures during their call and throughout the rotation.

Academic Year: 2011-12

- Learn to obtain a complete patient history, perform a physical examination on all admissions along with comprehensive evaluation of all pertinent diagnostic data.
- Make informed recommendations about diagnostic and therapeutic interventions based on physical examination, physiologic monitors, laboratory data, best medical evidence, and clinical judgment. Examples: pediatric patients with ongoing acute or chronic respiratory failure.
- Together with the attending, communicate plan of care to the parents and patients (if age appropriate). Example: Plan of care for mechanical ventilation.
- Work with health care professionals, including those from other pediatric sub-specialties and other medical disciplines, to provide patient-focused care, develop and carry out patient management plans. Examples: Pediatric pulmonary services, trauma surgery team, respiratory care, nutritionists, pharmacology, nursing, social services and rehabilitation.

### Medical Knowledge

Goal: Students must demonstrate knowledge about established biomedical and clinical sciences and the application of this knowledge to the care their patients. They must understand the approach to establishing a differential diagnosis in the critically ill pediatric patient. (MK 2-4, PBL-6)

Objectives:

- Demonstrate understanding of the basis of most common etiologies of pediatric respiratory failure including but not limited to infectious, traumatic, breathing failure, metabolic, and cardiac origin.
  - Learn pediatric pulmonary physiology according to age and developmental staging.
  - Learn applicable non invasive and invasive methods for mechanical ventilation in the critically ill pediatric patient.
  - Learn to evaluate and manage fluid and electrolytes in the pediatric critically ill patient
- Understand the principles of pediatric resuscitation and stabilization including the acute management of cardiorespiratory failure.
  - Become skilled at bag and mask ventilation in the pediatric patient population via simulation.
- Understand the role and purpose of pediatric intensive care for the pediatric patient, the short and long-term ethical, societal and philosophical concerns, and the reason to obtain and assess ongoing data of outcome.

### Practice-Based Learning and Improvement

Goal: Students must be able to assimilate scientific evidence and improve their patient care practices. (PBL1-7)

Objectives:

- Find and study evidence from scientific studies related to their patient's medical problems. Example: Randomized controlled trials of therapy for Traumatic Brain Injury.
- Use information technology to manage information, access on-line medical information; and support each students own education.

### Interpersonal and Communication Skills

Goals: Students will be able to demonstrate interpersonal and communication skills that result in effective information exchange with Pediatric Intensive Care, Trauma Surgery team, and Pediatric operating room team members and patient families. (ICS 1-3)

Academic Year: 2011-12

Objectives:

- Give clear, concise, well-organized presentations on rounds, exchange patient information effectively with members of the care team and participate in rounds during other patient presentations.
- Learn to transfer care
- Explain critically ill patient's problems and treatments in lay person's terms to parents, ensuring their comprehension of their infant's illness.

Professionalism

Goals: Students must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. This includes timely arrival for each student's own patient evaluation and preparation prior to presentation for rounds and arriving to participate on rounds, remaining attentive to all patient presentations by the other team members and participating in discussions about patient care. (Prof 1-8)

Objectives:

- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and their families that supersedes self-interest; accountability to patients and the profession, and a commitment to excellence and on-going professional development. Example; willingness to seek additional patients for evaluation.
- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care and confidentiality of patient information.
- Demonstrate sensitivity and responsiveness to patients' and/or their family's culture, age, gender and disabilities.

Systems-Based Practice

Goals: Students must demonstrate how to practice quality health care and learn to become advocates for their patients within the Pediatric Intensive Care environment.

Objectives:

- Understand the criteria for admission to the pediatric intensive care unit
- Discuss the importance of reducing errors and infections in the critical care area and identify mechanisms for reducing errors and nosocomial infections.
- Learn the importance of initiating early discharge planning and participate in the discharge planning of at least one of his or her patients.

***Describe the process used to define the kinds of patients, clinical conditions, or procedural skills and the clinical settings for such experiences that are needed to meet clerkship objectives. At what point during the clerkship are individual students' clinical experiences reviewed to assure that learning objectives are being met, and who conducts that review?***

The El Paso Childrens Hospital faculty group was involved in the creation and development of the curriculum. The clinical setting for this rotation is dictated by the nature of the rotation and limited to the aforementioned critical care setting. The acquisition of medical skills will be assessed weekly via clinical and simulation experience conducted and/or observed by the neonatology faculty. The students will be

expected to participate in daily Pediatric Intensive Care Unit (P.I.C.U.) rounds and be an integral part of the P.I.C.U. team.

The students will attend the following scheduled conferences:

- Pediatric Didactic Lectures – Wednesday afternoons from 12:30-16:30
- Pediatric Grand Rounds – 1<sup>st</sup> Wednesday of each month 0800-0900.
- Pediatric Morning Report – Monday and Thursday at 0800-0830 (when patient assignment allows).
- Discharge Planning Rounds – Every Tuesday at 1430-1530.

***Who is responsible for ensuring that each student's clinical experiences are appropriate to meet the objectives of the clerkship? Describe the actions that would be taken if a student were not making satisfactory progress in meeting clerkship expectations for clinical experiences.***

The PICU clerkship director/and faculty attending are responsible for ensuring that each student is being exposed to appropriate clinical experiences. The clerkship director will meet with the student at the beginning of the rotation to review the selective syllabus and to discuss expectations and procedures. The clerkship director and/faculty attending will also meet with the student at the beginning of each succeeding week to review their patient care experiences. In rare circumstances it may be necessary to assign students computerized cases, simulations, or special readings to achieve objectives that are not being met through actual patient care.

### **Preparation for Teaching**

Attending faculty and residents (see below) will be oriented to the experience by the PICU clerkship director and provided copies of the expectations of the course and evaluation form that they will use to assess student performance.

***If resident physicians teach in the clerkship or otherwise supervise medical students, how are they informed about the clerkship objectives and prepared for their teaching role?***

Residents are required, as part of their training and orientation, to function as supervising instructors for the medical students. All residents are required to participate in a "Residents as Teachers" program that is administered by the Office of Graduate Medical Education. The PICU clerkship director meets with participating residents to review the goals, objectives, and expectations of the rotation and the residents' roles as teachers and evaluators of student performance.

***How are faculty members across instructional sites oriented to the clerkship objectives and the evaluation system?***

At present all instruction and clinical activity occurs in the Children's Hospital of El Paso, University Medical Center Newborn Nursery and University Medical Center Labor and Delivery. Each faculty member will receive copies of the curriculum, goals and objective.

**REQUIRED CLERKSHIP FORM (Continued)**

<b>Clerkship title:</b>	Critical Care Selective: Pediatric ICU
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**Methods for Evaluating Clerk Performance**

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*Describe the methods used in the clerkship to evaluate students' core clinical skills. How does the school ensure that such evaluation occurs for all students?*

The student will be evaluated on their participation in rounds, the adequacy of their patient care, their understanding of the pathophysiology of the disease that their patients have, and the quality of their progress notes. Clinical skills (initiation of neonatal resuscitation/airway management) will be assessed by simulation. Weekly written evaluations by supervising faculty will be required and submitted to the clerkship director. Grades are pass/fail/honors and there is no final examination.

*List all contributors to the final clinical evaluation of the clerk (e.g., full-time faculty, volunteer attending physicians, resident physicians, others).*

There will be a minimum of 4 full time pediatric intensive care faculty and 2 part-time pediatric intensive care faculty rotating and covering during day and night that will be engaged in medical student education. There are 2-3 supervising pediatric residents on rotation each month.

*If NBME subject (shelf) examinations are used, give mean scores for the last three years.*

Not Applicable.

<b>Year</b>			
<b>Score</b>			

*Is a narrative evaluation of student performance submitted in addition to or as a component of the clerkship grade?*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative comments are a required component of the assessment system.

**Clerkship Outcomes/Evaluation**

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*Comment on the adequacy of faculty (full-time, part-time, and volunteer), patients, and other resources for this clerkship.*

There are a total of 7 pediatric critical care faculty board certified who participate in the care and quality improvement process at El Paso Childrens Hospital P.I.C.U. In addition there are multiple qualified pediatric oriented teams who participate in the care of the critically ill children admitted to the PICU such as but not limited to Pediatric trauma surgery team, pediatric general surgery team, pediatric Interventional radiology services, pediatric hematology and oncology services, pediatric gastroenterology services, pediatric nephrology services amongst others.

Academic Year: 2011-12

*Provide a summary of student feedback on the clerkship (and any other evaluation data) for the past two academic years; include the percent of students providing evaluation data. Note any recent changes in the clerkship. If problems have been identified by student evaluations or other data, describe how these are being addressed.*

The PLFSOM is in the early stages of implementing its fourth year curriculum. This data is not yet available.

*Identify major successes in the clerkship and challenges to be overcome.*

**Successes:** Experienced faculty with many years of experience educating fourth year students.

**Challenges:** Initiation and evaluation of a new curriculum.



**PART B. REQUIRED COURSE FORM**

[update, May 30 2012]

<b>Course title:</b>	<b>Capstone</b>
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	John MacKay

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course, and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	1
GME ( includes residents)	10
Radiology	2-3
Emergency Medicine	2-3 including course director
Other clinical departments with residencies	2

**Course Objectives**

*Are there written objectives for the course? (check)*

<b>Yes</b>	x	<b>No</b>	
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*Briefly summarize the objectives/content areas covered in the course.*

This is a one week, required course for MS IV students designed to assist them in make the transition from being a medical student to being a first year house officer. The course will be structured with a combination of lecture and small group activities over a 5 day period of time. It will include activities focused on the preparation of the student to begin residency. It will cover general resident issues and discipline specific issues. Each activity is selected to improve the preparation of the student for residency. It will include technical areas,cognitive areas, communication and life preparation activities. All feedback is formative and designed to provide content areas for the student to identify his or her needs for improvement as they begin residency. Each activity will have particular goals and objectives which will reflect the general goals for the entire experience.

Overall Goals:

- Provide the student with final preparation for the transition of the student to the role of the resident
- Provide the student with the technical skill set requisite to beginning residency

- Provide the student formative feedback in the basics of patient/family communication and patient evaluation  
Provide students and introduction to the atmosphere of Graduate Medical Education, the regulatory environment and wellness of the resident and their family during residency

Example topics to be included in this 1-week experience include the following:

- Student-Resident Transition
- Licensing and prescribing
- Billing and coding
- Ethics
- Health Care Economics
- Legal issues
- Wellness
- Communication skills
- Clinical simulations
- EKG
- Imaging cases

### **Preparation for Teaching**

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents	x	
Graduate Students		x
Postdoctoral Fellows		x

*If yes, describe how they are informed about the course objectives and prepared for their teaching role?*

Several of the Capstone sessions will include residents as teachers. They will participate in a variety of ways depending on the specific activity. The activity entitled, “Discipline Specific Lab” will have resident participation defined by the Individual Discipline. Course objectives will be communicated by the Department with review by the Course Director, Clinical Rotation Director for the Discipline and the Discipline Program Director. The activities entitled, “Residency Fair” and “Student to Resident Transition” will be coordinated through the Resident’s Association and the Chief Residents for each Department or their representative. The Course Director will meet with these individuals to communicate the goals for the rotation and refine them further. Residents may also volunteer to participate in other individual sessions. It will be up to the Course Director to insure that any resident who participates has had the goals and objectives communicated to them and understand their role in the activity. The Course Director will discuss with the individual resident’s Program Director to enable their participation to be considered as a portion of their academic goals for the residency’s requirements. The course director will also provide education relevant to general and discipline specific duties of the resident as teacher.

*If the entire course is taught at more than one site (e.g., at geographically separate campuses), describe how instructional staff at all sites are oriented to the objectives and grading system.*

The entire course will be taught at the main site. With future classes having more students the Residency simulation center will need to be utilized for Simulation based sessions. The instructional staff will have the objectives as the basis for design of individual simulation exercises. All grades will be based on participation. All feedback will be formative.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Capstone
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**Student Evaluation**

If NBME subject (shelf) examinations are used, give the mean scores for the last two classes:

<b>Year:</b>			
<b>Score:</b>			

Not applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient exam	<input checked="" type="checkbox"/>	Other (describe) Attendance and participation

The student will receive a Pass/Fail for this course based on their participation in the activities of the Capstone.

*Briefly describe any formative assessment activities that occur during the course (practice exams, quizzes, etc.) including when during the course they occur.*

The activities entitled, "Communication assessment", "Simulation Cases" and "Telling Bad News" will have formative assessment based on the specific modeled activity. The residents will be critiqued in group and will participate in the small group review of their performance by their peers controlled by the Moderator for that session.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input type="checkbox"/>	<b>No</b>	<input checked="" type="checkbox"/>
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This is strictly a P/F course based on attendance and participation.

**Course Outcomes/Evaluation**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

We have ample classroom facilities(including 2 simulation facilities), faculty, and staff support for this 1 week capstone experience.

*Provide a summary of student feedback on the course (and any other available evaluation data). If problems have been identified by student evaluations or other data, describe how they are being addressed.*

This is a new course and has not been reviewed relative to performance.

*Identify major successes in the course to date and problems to be overcome*

*Successes:*

- None to date. This course will be offered for the first time in May, 2013.

*Challenges*

- This course, though short, is complex and will require a lot of coordination and planning. The planning committee consists of the course director, who is being supported as a 0.1 FTE to plan and coordinate this course, the associate dean for student affairs, and the senior associate dean for medical education. These individuals have experience and access to resources that will enable us to implement a successful experience for our graduating students.



## REQUIRED COURSES AND CLERKSHIPS

### A. SUMMARY DATA

<b>PART A. SUMMARY DATA ON COURSES AND CLERKSHIPS</b>
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#### A. METHODS OF INSTRUCTION

##### YEAR ONE/ACADEMIC PERIOD ONE

Course	Formal instructional hours					Total
	Lecture	Lab	Small groups*	Patient contact	Other†	
Master's Colloquium I					28.00	28.00
Master's Colloquium II					20.00	20.00
Medical Skills I				9.75	25.00	34.75
Medical Skills II	3.00				22.00	25.00
Society, Community & the Individual I	21.50		72.00	12.00	23.50	129.00
Society, Community & the Individual II	2.00		16.00	12.00	12.00	42.00
Scientific Principles of Medicine I	127.00	36.00	35.00		96.75	294.75
Scientific Principles of Medicine II	138.00	15.00	24.00	0.00	71.00	248.00
<b>TOTAL</b>	<b>291.50</b>	<b>51.00</b>	<b>147.00</b>	<b>33.75</b>	<b>298.25</b>	<b>821.50</b>

\* Includes case-based or problem-solving sessions

† **Other by Course:**

Master's colloquium consists of a large group discussion format. For some sessions, students break into small discussion groups and then come back to the large group to discuss.

Medical Skills other categories include large/small group sessions, 1 review session and 1 self-taught session. The large/small group discussions consist of a short readiness/orientation (5 minutes) after which the group is split into teams which complete the skills sessions for the day. Examples of the type of activities include exercises on communications, standardized patient cases, practice skills, simulation exercises, etc. Team size varies from 2 to half the group. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time.

Society, Community & the Individual: Other categories include self-taught, large group discussion, large/small group, and student presentation sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions. Large/small group sessions for this course consist primarily of a lecture followed by practice sessions where students apply the lecture material. During student presentation sessions, a small groups of students present community assessment project results to their fellow students and faculty.

Scientific Principles of Medicine: the other category consists of self-taught sessions, interactive large group sessions, formative exams with feedback, and large/small group sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions, including tank side grand rounds where small groups of students present to the class. Large/small group sessions for this course consist interactive sessions where students break into small group then return to the whole group to discuss with instructor. Sessions do not have a universal format but are characterized by the mix of small and large group work.

**YEAR TWO/ACADEMIC PERIOD TWO**

## Formal instructional hours

Course	Lecture	Lab	Small groups*	Patient contact	Other†	Total
Master's Colloquium III					20.00	<b>20.00</b>
Master's Colloquium IV					22.00	<b>22.00</b>
Medical Skills III			10.00	6.00	10.50	<b>26.50</b>
Medical Skills IV				6.00	12.00	<b>18.00</b>
Society, Community & the Individual III	9.00		11.50	12.00	4.50	<b>37.00</b>
Society, Community & the Individual IV			10.00	12.00	5.00	<b>27.00</b>
Scientific Principles of Medicine III	104.00	9.00	32.00		51.00	<b>196.00</b>
Scientific Principles of Medicine IV	96.00	3.00	28.00		59.50	<b>186.50</b>
<b>TOTAL</b>	<b>209.00</b>	<b>12.00</b>	<b>91.50</b>	<b>36.00</b>	<b>184.50</b>	<b>533.00</b>

\* Includes case-based or problem-solving sessions

† **Other by Course:**

Master's colloquium consists of a large group discussion format. For some sessions, students break into small discussion groups and then come back to the large group to discuss.

Medical Skills other categories include large/small group sessions and community placement. The large/small group discussions consist of a short readiness/orientation (5 minutes) after which the group is split into teams which complete the skills sessions for the day. Examples of the type of activities include exercises on communications, standardized patient cases, practice skills, simulation exercises, etc. Team size varies from 2 to half the group. Community placement consists of a tour of UMC Nursery. The nursery activities involve patient contact but of limited scope.

Society, Community & the Individual: Other categories include self-taught, large group discussion, large/small group, and student presentation sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions. Large/small group sessions for this course consist primarily of a lecture followed by practice sessions where students apply the lecture material. During student presentation sessions, a small groups of students present community assessment project results to their fellow students and faculty.

Scientific Principles of Medicine: the Other category consists of self-taught sessions, interactive large group sessions, formative exams with feedback, and large/small group sessions. Self-taught sessions are materials with learning objectives provided to the student; students are expected to learn the material outside of classroom time. Large group discussion sessions are interactive class sessions. Large/small group sessions for this course consist interactive sessions where students break into small group then return to the whole group. Sessions do not have a universal format but are characterized by the mix of small and large group work.



**YEAR THREE/ACADEMIC PERIOD THREE**

Clerkship	Total wks	% Amb.	# Sites used*	Typical hrs/wk formal instruct**	Clinical encounter criteria (Y/N)	Patient log (Y/N)
Internal Medicine	10	35.4%	2/2	8.3	Y	Y
Psychiatry	6	52.6%	2/3		Y	Y
Family Medicine†	6	98.5%	2/13	3.9	Y	Y
Surgery	10	23.5%	1/1		Y	Y
Pediatrics	8	64.2%	1/1	7.9	Y	Y
Obstetrics/Gynecology	8	56.6%	1/1		Y	Y

\* Both psychiatry and family medicine send their students to community clinics as part of their outpatient clinical experiences. Not all students will go to all sites.

\*\*Reported by block. Because our clerkships are semi-integrated, students in a block attend formal instruction by both clerkships. Results are reported by the 15 week average for students in the block. Students within the block attend didactic sessions in common.

† FM includes 4 hrs /week designated as self-directed learning time not reported as formal instruction.

**YEAR FOUR/ACADEMIC PERIOD FOUR**

Clerkship	Total wks	% Amb.	# Sites used*	Typical hrs/wk formal instruct**	Clinical encounter criteria† (Y/N)	Patient log (Y/N)
Clinical Neuroscience	4	40%	1	5	Y	Y
Emergency Medicine	4	100%	1	4	Y	Y
Critical Care#(see below)	4	0%	2	5-8	Y	Y
Sub-Internship##(see below)	4	0-30%	1	4	Y	Y

\*Include the number of sites used for inpatient teaching and the number of sites used for outpatient teaching in the clerkship in the following format: # inpatient/ # outpatient

\*\*Sum of lectures, conferences, and teaching rounds; show the range of hours if there is significant variation across sites

† Have criteria for the kinds of patients, clinical conditions, or procedural skills been defined?

# Please note: Students must complete a critical care selective in one of the following—MICU, CVICU, NICU, PICU, or SICU. Hours of formal instruction varies depending upon the specific selective.

## Please note: Students are required to complete a sub-internship experience in Internal Medicine, Family Medicine, Pediatrics, or Obstetrics-Gynecology. The amount of ambulatory time varies by sub-I.

Course	Lecture	Lab	Small groups *	Patient contact	Other†	Total
Capstone	12	10	12	0	2	36

\* Includes case-based or problem solving sessions

† Final “Progress Test”

**B. METHODS OF EVALUATION****YEAR ONE/ACADEMIC PERIOD ONE**

Course	# of exams	Contribute to Grade (Check all that apply)						
		Internal exams	Lab or practical exams	NBME subject exams	Faculty/resident rating*	OSCE/SP exam	Paper or oral pres.	Other†
Medical Skills I/II	6					✓		✓
Master's Colloquium I/II	0						✓	✓
Society, Community & the Individual I/II	4	✓	✓		✓			✓
Scientific Principles of Medicine I/II	6	✓			✓		✓	✓

\* Include evaluations by faculty members or residents in clinical experiences and also in small group sessions (for example, a facilitator evaluation in small group or case-based teaching)

† Describe the specifics in the report narrative

**Med skills I/II** - The components of the composite assessment are:

- Attendance: Attendance will be recorded weekly. Cumulatively, session attendance will constitute 30% of each student's grade for the course.
- Performance on weekly quizzes: A readiness assurance quiz is regularly included at the beginning of each Medical Skills session. Students achieving high cumulative performance on these quizzes will gain one bonus point added to their cumulative grade for the Unit.
- Completion of the OP Log: Students are expected to record each standardized patient encounter in their Online Patient Log (OP Log). Students completing their OP Log with all of their standardized patient encounters will receive one bonus point added to their cumulative grade for the Unit.
- Performance on OSCE examinations. Each end-of-Unit OSCE will have between 3-5 stations. Two or three of these stations will be standardized patient encounters. Assessment at each station will be based on demonstration of proficiency as assessed using predetermined criteria that assess history taking skills, physical examination technique, communication skills, and professional demeanor. Performance on the OSCE examinations will constitute 70% of the grade for the course.

**Master's Colloquium I/II** - The grading for the Masters' Colloquium has two components:

- Essays: 2 per semester.
- The Professionalism in Colloquium statement at the end of the semester.

**Society, Community, & Individual I-IV** - There are three components of SCI that are graded;

- Classroom learning experiences (attendance at required) and 2 exams 50 points possible
- Community clinic experience 50 points possible - the preceptor feedback form and the student checklist
- Spanish Grade determined by participation and performance on evaluations
  - In-class Participation - Through active speaking, listening, and writing in a professional manner
  - Assignments – Periodic assignments will be made to assist students in learning material
  - Listening Evaluations – Mid-term and final listening evaluations
  - Oral Evaluations – Mid-term and final oral evaluations

**Scientific Principles of Medicine I/II**

- Units 1-5 Unit Grade = 95%(Summative Assessment Grade) + 5%(WCE Attendance)
- Unit 6 - The overall grade for this unit is comprised of the following weighted components:
  - 60% - Summative assessment grade
  - 10% - Donor Electronic Medical Record (DEMUR) grade\*
  - 10% - 'Student teaching students' (STS) anatomy assignment\*\*
  - 10% - Performance on the 'Coding of the Rich & Famous' simulation exercise
  - 5% - Tankside Grand Rounds performance grade
  - 5% - Attendance at Tankside Grand Rounds and the simulation exercise

**YEAR TWO/ACADEMIC PERIOD TWO**

Course	# of exams	Contribute to Grade (Check all that apply)						
		Internal exams	Lab or practical exams	NBME subject exams	Faculty/resident rating*	OSCE/SP exam	Paper or oral pres.	Other†
Medical Skills III/IV	5	✓				✓		✓
Master's Colloquium I/II	0						✓	✓
Society, Community & the Individual I/II	2	✓	✓		✓			✓
Scientific Principles of Medicine III/IV	5	✓			✓			✓

\* Include evaluations by faculty members or residents in clinical experiences and also in small group sessions (for example, a facilitator evaluation in small group or case-based teaching)

† Describe the specifics in the report narrative

**Medical Skills III/IV** The components of the composite assessment are:

- Attendance: Attendance will be recorded weekly. Cumulatively, session attendance will constitute 30% of each student's grade for the course.
- Performance on weekly quizzes: A readiness assurance quiz is regularly included at the beginning of each Medical Skills session. Students achieving high cumulative performance on these quizzes will gain one bonus point added to their cumulative grade for the Unit.
- Completion of the OP Log: Students are expected to record each standardized patient encounter in their Online Patient Log (OP Log). Students completing their OP Log with all of their standardized patient encounters will receive one bonus point added to their cumulative grade for the Unit.
- Performance on OSCE examinations: Each end-of-Unit OSCE will have between 3-5 stations. Two or three of these stations will be standardized patient encounters. Assessment at each station will be based on demonstration of proficiency as assessed using predetermined criteria that assess history taking skills, physical examination technique, communication skills, and professional demeanor. Any TBL sessions held during the Unit will also be included in the OSCE exam score. Performance on the OSCE examinations will constitute 70% of the grade for the course.
- Team-based Learning: TBL sessions are included to teach selected diagnostic and test interpretation skills. TBL sessions consist of an individual readiness assurance test, a group readiness assurance test, and an application exercise. All of these activities are graded, and scores from these TBL activities will be included as part of the final Unit grade for each student. It is noted that a small contribution of this grade comes from group activities. Therefore each student's individual Unit grade will, to a small extent, reflect the performance of their peers.

**Master's Colloquium III/IV** - The grading for the Masters' Colloquium has two components:

- Essays: 2 per semester.
- The Professionalism in Colloquium statement at the end of the semester.

**Society, Community, & Individual I-IV** - There are three components of SCI that are graded;

- Classroom learning experiences (attendance at required) and 2 exams 50 points possible
- Community clinic experience 50 points possible - the preceptor feedback form and the student checklist
- Spanish Grade determined by participation and performance on evaluations
  - In-class Participation - Through active speaking, listening, and writing in a professional manner
  - Assignments – Periodic assignments will be made to assist students in learning material
  - Listening Evaluations – Mid-term and final listening evaluations

Academic Year 2011-2012

- Oral Evaluations – Mid-term and final oral evaluations

**SPM III/IV** - Other consists of attendance points (5% of grade) for selected sessions. These are small group sessions where we have determined that the quality of the learning experience is dependent on participation.

**YEARS/ACADEMIC PERIODS THREE AND FOUR**

Course or Clerkship	Contribute to Grade (Check all that apply)						Clinical skills observed (Y/N)†	Mid-course feedback (Y/N)
	NBME subject exams	Internal written exams	Oral exam or pres.	Faculty/resident rating	OSCE/SP exams	Other*		
Family Medicine Clerkship	✓			✓	✓	✓	Y	Y
Surgery Clerkship	✓			✓	✓	✓	Y	Y
Internal Medicine Clerkship	✓			✓	✓	✓	Y	Y
Psychiatry Clerkship	✓		✓	✓	✓	✓	Y	Y
Obstetrics/Gynecology Clerkship	✓			✓	✓	✓	Y	Y
Pediatrics Clerkship	✓		✓	✓	✓	✓	Y	Y
Clinical Neuroscience	✓			✓			Y	Y
Emergency Medicine			✓	✓		✓	Y	Y
Critical Care				✓			Y	Y
Sub-Internship				✓			Y	Y

† Are all students observed performing core clinical skills? (Yes or No)

\* Other Contribution to Grades:

For all clerkships, student grades also depend on Op-log and Professionalism

For clerkships there may also be items required to satisfactorily before the student has

“completed” the clerkship requirements:

- Family Med – Web case completion is required
- Surgery – reflective writing worksheet
- Psychiatry – weekly reading test reflects in “the clerkship director’s final grade report to the Dean of Student Affairs. This will then be reflected in the Dean’s letter when the student is applying for residency positions.”
- National EM Exam

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 1: Introduction to Health and Disease
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Janet Piskurich, PhD/Nadah Zafar, MD/Kathryn McMahon, PhD/Tanis Hogg, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Medical Education	16
Family Medicine	6
Pediatrics	2
Internal Medicine	3
Pathology	1
Emergency Medicine	1

#### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	✓	No	
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Specific written learning objectives are provided for each instructional session in this unit. These objectives are available to students electronically through WebCT course management system. A compilation of these objectives are available for on-site inspection. The basic science topics included in this specific unit are listed, by discipline, in the topic appendix at the conclusion of this course description.

*Briefly summarize the objectives/content areas covered in the course.*

Introduction to Health and Disease is a 5 week introductory unit in the two-year longitudinal Scientific Principles of Medicine (SPM) course. The goal of SPM is to provide students foundational knowledge in the basic and clinical sciences organized by organ systems and “clinical presentations” (CPs) illustrating the clinical manifestations, etiology, course, and management of common problems presented to physicians. The CPs associated with this introductory unit include:

1. The Adult Periodic Health Examination
2. The Pediatric Periodic Health Examination
3. Sore Throat
4. Fever
5. Wound



The sequence of the clinical presentations has been structured so that the concepts developed during the study of one topic provide the foundation for subsequent topics. The basic medical science disciplines are interwoven. Basic information is provided for each clinical presentation including its clinical significance and a schematic representation of the relationships of the potential causes. These provide the basis for discussion of each of the underlying basic science principles.

Each clinical presentation includes a set of basic science learning objectives related to the appropriate scientific concepts of anatomy (gross and neuroanatomy, including medical imaging), behavioral science, biochemistry, cell and molecular biology, embryology, genetics, histology, immunology, microbiology, nutrition, pathology, pharmacology and physiology). Discipline experts provide instruction using various teaching methods including lectures, laboratories, and small group discussions. Both basic science and clinical faculty participate in this component of the instructional process.

### **Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets”) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Residents, fellows, and graduate students do not participate in the teaching of this unit.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This course is taught at one site only, the campus of the Paul L. Foster School of Medicine.

## REQUIRED COURSE FORM (Continued)

<b>Course title:</b>	Scientific Principles of Medicine Unit 1: Introduction to Health and Disease
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### Student Evaluation

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient exam	<input checked="" type="checkbox"/>	Other (describe) Small group tutor assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)

Yes	<input checked="" type="checkbox"/>	No	
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Students participate in a 25 item formative assessment each week covering material presented in the preceding week. Typically, these items are multiple choice questions written in the USMLE vignette format and are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students completed an anonymous on-line evaluation at the end of this unit of the SPM course. On a 5 point scale, with 1 representing a low level of agreement and a 5 a high level of agreement, students rated the elements of this course as follows (blanks indicate item was not included on given administration):

<b>Unit 1: Introduction to Health and Disease</b>		
<b>Questions</b>	<b>2010-11</b>	<b>2011-12</b>
This unit was well organized	4.1	4.0
The learning objectives were clearly identified	4.0	4.0
The course met the identified learning objectives	4.0	3.9
The order of clinical presentations made sense	4.0	3.9
The basic science material was well integrated.	4.1	4.0
The amount of material was reasonable.	4.0	3.8
I knew what I was supposed to be learning and why.	4.0	3.5
Evaluation methods were fair measures	3.8	3.6
The lectures helped me learn the material.	3.9	3.9
Clinical presentation 'schemes' contributed to my learning	NA*	4.0
The process work sheets contributed to my learning	NA*	3.7
The Work Case Examples helped me learn	4.5	4.1
Anatomy Labs helped me learn the material.	3.1	3.5
Microbiology Labs helped me learn the material.	3.2	2.6
Overall, I learned useful knowledge and/or skills during this unit.	4.4	4.4
N	60	85
Response rate	97%	100%

\*NA = Not Asked

As can be seen by the information provided in this table, students are generally satisfied with this particular Scientific Principles of Medicine unit. Changes that were initiated following the first (2009) iteration of this unit (e.g. decreased volume of reading, revision of learning objectives, modification in the sequence of clinical presentations, improved faculty collaboration to strengthen content integration), resulted in improved student ratings in 2010 that have persisted into the 2011 administration of the course. One outlier in student evaluations during the 2011-12 academic year was the microbiology laboratories. The unit committee met with student representatives to learn more about the student experience and the following changes are being proposed:

- The microbiology labs will be revised to emphasize clinically relevant cases as was done in well received microbiology labs in subsequent units.
- Due to the scheduled expansion in class size from the 2010 -11 to 2011-12, it was necessary to deliver this lab in two sessions by different instructors. A greater effort will be made in the 2012-13 class year to ensure that the two instructors are implementing this lab session consistently.

In addition to the specific changes noted above to improve the microbiology laboratory experience the unit directors are going to provide students with more explicit instruction on how information presented in this unit relates to the clinical presentations. We are hopeful that by doing so, students will have a better understanding of “what they are supposed to learn and why?”

*Identify major successes in the course and problems to be overcome.*

*Strengths:*

- This introductory unit is generally well received by students who appreciate unit organization and the opportunity to apply what they are learning to clinical problem solving in the weekly “Worked Case Example” sessions.
- Free-text comments indicate that students were particularly satisfied with the pathology and immunology instruction.
- Frequent feedback on performance through weekly formative examinations enables students to assess their own learning needs and areas in need of supplementation.

*Challenges:*

- Because this unit serves an introductory function and two of the clinical presentations (periodic health exam in the adult and in the child) are intended to highlight the concept of homeostasis, the direct link between basic science content and the clinical presentations are more difficult to make. We will address this challenge by being more explicit about how the basic science covered during these two weeks relates to the concept of homeostasis in health and illness.
- Students reported that there were some last minute changes to some sessions that they found confusing and stressful. We will reduce such changes to an absolute minimum in the future.

## REQUIRED COURSE FORM (Continued)

<b>Course title:</b>	Scientific Principles of Medicine Unit 1: Introduction to Health and Disease
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### TOPIC APPENDIX - INTRODUCTION TO HEALTH AND DISEASE:

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#### 1. ANATOMY

- Gross anatomy
  - Anatomical terminology
  - Major surface landmarks and subdivisions of the thorax and abdomen
  - Surface anatomy exam of donor cadavers
  - Thoracic and abdominal organs in situ (previous dissections in lab)
  - Overview of the pharynx and larynx (lectures plus previous dissections in lab)
  - Overview of lymph drainage patterns
  - Concept of potential spaces in body cavities and compartments
  - Relationships of surface landmarks to underlying viscera
  - Introduction to medical imaging
- Neuroanatomy
  - Overview of the peripheral nervous system (previous dissections and lecture in lab)
  - Overview of the pharynx
  - Introduced concept of cranial nerves with examples

#### 2. BEHAVIORAL SCIENCE

- Introduction to Psychoneuroimmunology
  - Relationship between stress and immune function
  - Stress and the endocrine axes
  - Psychosocial stress and neuro-endocrine-immune pathways
  - Effects of psychosocial stress on infection and allergy
  - Behavioral interventions

#### 3. BIOCHEMISTRY

- Biochemical basis of health
  - Common types of chemical bonds
  - Biochemical basis of cell structure and function
  - The genetic code and translation
  - General properties of amino acids

Academic Year: 2011-12

- Protein structure and function
- Post-translational modifications
- pH, pKa, pI
- Protein-ligand interactions
- Structure/composition of major dietary fuels
- Biochemical basis of fever and the inflammatory response
  - Factors affecting protein denaturation
  - NSAIDs: mode of action

#### **4. CELL AND MOLECULAR BIOLOGY**

- Eukaryotic cell organization and organelles
- Structure and function of the nucleus
- Structural and chemical properties of cell membranes
- Structural and chemical properties of oligosaccharides, glycoproteins, glycolipids and proteoglycans.
- Intracellular compartments
- Membrane and protein trafficking
- Cell biology of macrophages
- Cell signaling and common functional molecules
- Cancer biology, basic principles

#### **5. EMBRYOLOGY**

- Introduction to ectoderm, mesoderm and endoderm
- Development of the respiratory system
- Development of the pharynx

#### **6. GENETICS**

- Structure of human genes and chromosomes
  - DNA composition and structure
  - Chromatin/chromosome structure
  - Types of DNA sequences
- Human gene function
  - Central dogma
  - DNA replication
  - DNA transcription
  - RNA processing
  - Genetic code
  - Regulation of gene expression
- Genetic inheritance and variation
  - Cell cycle (meiosis and mitosis)

- Gene mutations

## **7. HISTOLOGY**

- Introduction to light, electron and virtual microscopy
- Epithelium: embryology, organization and distribution
- Membrane specializations of epithelia
- Connective tissue, molecular architecture, properties and distribution

## **8. IMMUNOLOGY**

- Introduction to innate and adaptive immunity
  - Cardinal features, cells and tissues
  - Complement system
- Adaptive immunity
  - Antigen processing and presentation
  - Antigen receptors and lymphocyte maturation
  - Lymphocyte selection and activation
  - Effector functions and memory
  - Antibody-based laboratory techniques
  - T-dependent and T-independent responses
  - Principles of vaccination
- Overview of immunity to microbes
  - Pyrogens and the immune system
- Introduction to immune deficiencies
- Introduction to hypersensitivity

## **9. MICROBIOLOGY**

- General principles of bacteriology: identification and classification, structure, growth and cell wall synthesis, normal flora, routes of infection and virulence factors, bacteremia and sepsis, epidemiology and vaccine preventable diseases
- Bacteria that cause sore throat and fever: Streptococcus species, Staphylococcus species, Neisseria, Corynebacterium diphtheriae, Bordetella pertussis, Clostridium tetani, Haemophilus influenza, Rickettsia rickettsii, Ehrlichia Chaffeinsis, Coxiella burnetii, Treponema pallidum, Borrelia species
- Bacterial genetics: chromosome structure, conjugation, plasmids, transformation, transduction
- General principles of virology: identification and classification, structure, replication, routes of infection and virulence factors, epidemiology and vaccine preventable diseases
- Viruses that cause sore throat and fever: Influenza, Parainfluenza, Coxsackie A, Rhinovirus, Measles, Mumps, Rubella
- General principles of parasitology: identification, protozoans, arthropods, helminths
- Parasites that cause fever: Plasmodium species



Academic Year: 2011-12

- Bacteria that cause wound infections: Staph aureus, Clostridium perfringens (introduction to anaerobes and bacterial toxins)
- Mechanisms of antibiotic resistance
- Laboratory techniques: light and fluorescence microscopy, sterile techniques and safety, gram and acid fast stains, catalase and motility tests, media, antibiotic sensitivity

#### **10. NUTRITION**

- Nutritional needs and consequences for childhood growth
- Growth charts and parameters of normal growth
- Age-appropriate dietary guidelines
- Protein needs during stress and starvation

#### **11. PATHOLOGY**

- Cellular responses to stress and toxic insults: adaptation, injury, and death
  - Introduction to pathology
  - Overview of cellular responses
  - Adaptations of cellular growth and differentiation
  - Cellular injury, aging and apoptosis
  - Intracellular accumulations, pathologic calcifications
- Acute and chronic inflammation
  - Mediators
  - Morphologic patterns
  - Outcomes, systemic effects and consequences
- Pathologic aspects of wound healing and repair

#### **12. PHARMACOLOGY**

- Pharmacokinetics
- Pharmacodynamics
- Antipyretic agents
- Antimicrobials: cell wall synthesis inhibitors

#### **13. PHYSIOLOGY**

- Homeostasis and homeostatic mechanisms
  - Thermoregulation, cytokines
  - Temperature homeostasis, environmental challenges
  - Homeostasis, negative and positive feedback
- Transport mechanisms
  - Membrane transport mechanisms and cell volume regulation
- Vascular permeability

Academic Year: 2011-12

- Vascular endothelia, edema, anaphylaxis
- Starlings Law of capillary filtration
- Sepsis and septic mechanisms
- Distribution and composition of bodily fluids
- Basics of chemical signaling and basic reflex arc

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit: Musculoskeletal and Integumentary Systems
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Richard Brower, MD/Asa Black, PhD/Elmus Beale, PhD/Dale Quest, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Medical Education	16
Internal Medicine	9
Orthopedic Surgery	5
Neurology	1
Family Medicine	4
Emergency Medicine	2
Pathology	3
Psychiatry	1
Anesthesiology	1
Dermatology	1

### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Specific written learning objectives are provided for each instructional session in this unit. These objectives are available to students electronically through the WebCT course management system. A compilation of these objectives are available for on-site inspection. The basic science topics included in this specific unit are listed, by discipline, in an appendix attached to this course description.

*Briefly summarize the objectives/content areas covered in the course.*

This unit of the SPM course provides an integrated presentation of major basic science and clinical concepts related to the musculoskeletal and Integumentary systems (“Skin and Bones”), including information on the peripheral nervous system. The unit is organized and delivered in the context of 8 relevant, common, and broadly applicable Clinical Presentations (CPs) as follows:

- 1) Bone Fractures and Dislocations
- 2) Joint Pain
- 3) Musculoskeletal Lumps and Masses

- 4) Limp and Deformity
- 5) Numbness and Pain
- 6) Weakness and Loss of Motion
- 7) Skin Lesions: Rash (Macules, Papules, Boils & Blisters)
- 8) Eczema and Pruritus
- 9) Hair and Nail Disorders

Typically a CPs is delivered at the beginning of a week long period of instruction in a one hour didactic session presented by an experienced clinician. These presentations include a definition and description of the clinical significance of the CP and the description of a hierarchical diagnostic “scheme” beginning with the problem presentation by the patient (e.g., joint pain) and descending through a series of decision points to specific categories of diagnoses. In discussing the clinical reasoning associated with the scheme, the presenter forecasts basic science topics and concepts necessary for understanding underlying processes at each branch point in the decision tree. These scientific concepts are then elaborated in an integrated week or so of instruction consisting of lectures, interactive problem solving sessions, and laboratory sessions, culminating in a two-hour small group “worked case example” session in which small groups of students and a physician faculty tutor analyze patient cases based on the clinical scheme presented at the beginning of the week and the basic science content presented based on that scheme. These sessions are designed to facilitate the consolidation of basic science knowledge in the context of the practical diagnostic scheme provided for each clinical presentation.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents	✓	
Graduate Students		✓
Postdoctoral		✓

Fellows		
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***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Residents may occasionally participate as small group facilitators in “worked case example” sessions. Typically, they do so primarily as “assistants” to experienced faculty members. All participants in worked case example sessions are provided with detailed instructions and session plans including sequenced case materials, questions and answers, illustrative power-point slides, etc. The unit director(s) are also readily available to answer questions. Whenever possible, new worked case example facilitators are encouraged to observe a session prior to participating as the facilitator of record.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

The course will be taught at only one site, the Medical Education Building on the campus of the Paul L. Foster School of Medicine.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Musculoskeletal and Integumenatry Systems
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
	Fill-in, short answer questions		Problem-solving written exercises
	Essay questions or papers		Presentations
	Oral exams		Preceptor ratings
	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

Yes	<input checked="" type="checkbox"/>	No	
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Faculty complete small group evaluation forms on the students in their WCE sessions. This form includes a free-text comment section. This form is uploaded into the student's e-portfolio.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students completed an anonymous on-line evaluation at the end of this unit of the SPM course. On a 5 point scale, with 1 representing a low level of agreement and a 5 a high level of agreement, students rated the elements of this course as follows (blanks indicate item was not included on given administration):

<b>Unit 2 Evaluation Data: Musculoskeletal and Integumentary Systems</b>	<b>2010-2011 Academic Year</b>	<b>2011-2012 Academic Year</b>
This unit was well organized.	3.4	2.5
The learning objectives clearly identified.	3.5	3.0
The course met identified learning objectives.	3.6	3.2
The order of clinical presentations made sense.	3.9	3.2
The basic science material was well integrated.	3.8	3.3
The amount of material was reasonable.	2.9	2.7
I knew what I was supposed to be learning and why.	3.6	3.0
The evaluation methods were fair	3.2	3.0
The Clinical presentation "schemes" helped me learn.	3.9	3.3
The process work sheets helped me learn the material.	3.6	--
The lectures helped me learn the material.	3.7	3.7
The Work Case Examples helped me learn the material.	4.4	4.2
Anatomy Labs helped me learn the material.	2.4	2.7
Physiology Labs helped me learn the materials	2.9	--
Microbiology Labs helped me learn the material.	--	2.8
Overall I learned useful knowledge and/or skills during this unit.	4.2	4.1
N	56	*64
Response rate	90%	*76%

(\*Please note: Due to technical difficulties responses from several students were lost, nearly 100% of students made an effort to provide end of course evaluation.)

Previously, this unit was titled Musculoskeletal System and Neurology and included several clinical presentations related to the central nervous system (e.g., Headache, Seizure and Epilepsy, Stroke, Altered Mental Status). Student evaluations of the 2010-11 iteration of the unit suggested that the volume and complexity of the material that needed to be mastered was overwhelming. Unit faculty leaders agreed that this unit should be decompressed and opted to shift most of the predominantly neurological CPs to the year 2 unit on special senses (previously titled Dermatology and Special Senses) and replacing the 5 neurological CPs with 3 CPs dealing with dermatological presentations.

As can be seen from the student evaluation data summarized above, this change did not result in a significant improvement in student perceptions of course quality. While students acknowledged gaining useful knowledge in this unit, students recorded lower evaluations in several areas including course organization, clarity of goals and objectives, order of clinical presentation, and quality of clinical schemes as aids to learning. Importantly, there was no improvement in the level of agreement with the item “The amount of material was reasonable.” In aggregate, students were not positive in their evaluation of the quality of the anatomy or microbiology laboratory experiences provided as part of this unit in its revised form.

Free-text responses revealed that many students continued to feel overwhelmed by the volume of information and that the faculty had not provided them with a clear “road map” to assist them in knowing what they needed to learn and why. There was still a considerable volume of material dealing with the central nervous system and some students commented that the dermatological components of the unit felt like “add-on” material. A number of faculty members participating in the delivery of this unit came to the conclusion that the amount of material covered dealing with the central nervous system was excessive, given the fact that the much of this material was intended to be shifted to the special senses unit in year 2.

A number of students also voiced concern about what they felt was less than optimal integration of basic science material. Many noted that anatomy instruction was disorganized and poorly integrated with the CPs. A number of critical comments were made about the role of “self-taught sessions” in pharmacology. A number of students expressed a preference for lecture-based instruction in this discipline because they felt it was difficult to master the material on their own based upon the instructional “monographs” and power point materials provided by the instructor. Plans for improvement are described in the next section.

*Identify major successes in the course and problems to be overcome.*

**Strengths:**

- An early overview of the nervous system facilitates integration of nervous system topics throughout the other organ systems in the curriculum
- The musculoskeletal content was generally well received despite the overall volume of material covered in this unit
- Students acknowledged the importance of the material and feel they gained valuable knowledge and skills

**Challenges/Problems:**

- Large total amount of new and challenging content covering three systems and much ‘foundational’ material across disciplines
- Students criticized the unit for poor organization but without a clear consensus as to recommended steps – possibly due to the total content overload and lack of an adequate and early explanation of Unit objectives and rationale



- Labs, especially in anatomy, heavily criticized as inefficient (with “student-teaching-student” system an inconsistent/unreliable method of instruction, and limb anatomy covered too quickly)

**Improvement plan:**

As a result of a pre-planned retrospective unit review (“De-briefing”), including the assessment and evaluation data, the Course and Unit Directors have developed a preliminary unit improvement plan which includes the following basic components:

- Rename the Unit “Neuromusculoskeletal and Integumentary Systems”
- Move the integumentary system clinical presentations to the front of Unit 2, creating a logical ‘bridge’ from the last clinical presentation of Unit 1 (“Wound”)
- Develop specific over-arching “Unit Goals” to be distributed to the students with brief explanatory remarks at the beginning of the Unit (to provide additional context and a ‘roadmap’)
- Continue to include an overview of the nervous system and detailed coverage of the peripheral nervous system in Unit 2 (limiting the central nervous system materials to a schematic understanding of the functional anatomy of the major pathways for sensation, voluntary movement and autonomic control)
- Re-sequence the anatomy content to provide a better conceptual foundation earlier in the unit, to be followed by lab sessions (expanding the labs by one additional session to allow for two sessions for the lower extremity)

The following steps are planned to improve the quality of the “Students-Teaching-Students” (STS) component of anatomy instruction. This plan is based on a focus group discussion with the students selected to serve as “near peer tutors” for anatomy in 2012-13.

- We are going to increase the number of instructors available for each lab.
- Student tutors will create a repository of effective STS resources (e.g. handouts, lesions plans)
- Faculty will provide a “STS Template”—a recommended sequence of events for the session.
- We will hold a teacher-Tutor pre-lab meeting to review objectives for the upcoming session.
- Look for opportunities to incorporate instruction on simple surgical/diagnostic procedures in as many labs as possible to highlight clinical relevance of session.

## **ANATOMY, EMBRYOLOGY, NEUROANATOMY**

### **MUSCULOSKELETAL SYSTEM**

#### ***Gross Anatomy***

- Introduction to the musculoskeletal system and the limbs
- Superficial and intermediate layers of the back
- Nerves and muscles of the face and neck
- Shoulder and deep back regions
- Pectoral region
- Anterior and medial thigh
- Axilla
- Gluteal region and hip
- Form and function of the brachial plexus
- Posterior thigh and knee
- Arm elbow and forearm
- Leg and dorsum of the foot
- Forearm, hand and wrist
- Leg, sole and ankle
- Vasculature/blood supply and lymphatic drainage of the limbs

#### ***Histology***

- Introductory histology of cartilage and bone
- The cytoskeleton
- Cell communication

#### ***Embryology***

- Ontogeny of the musculoskeletal system (normal and abnormal limb formation)
- Genetic regulation of limb formation

### **NEUROLOGICAL SYSTEM (in addition to overlapping topics listed above)**

#### ***Gross anatomy (overlapping with neuroanatomy)***

- Anatomy and functions of the cervical, brachial and lumbosacral plexuses

#### ***Neuroanatomy***

- Introduction to neuroanatomy
  - Anatomical organization and landmarks of the brain, brainstem, cerebellum and spinal cord
  - Spinal cord and major cerebral arteries

- Cranial nerve and prototypical brainstem syndromes
- Location and role of the thalamus
- Sensory tracts
  - Spinothalamic – anterolateral system
  - Dorsal column – medial lemniscus system
  - Trigeminal nerve and the trigeminothalamic system
- Motor tracts
  - Motor cortex, the corticobulbar tract and the corticospinal tract
  - Upper motor neuron and lower motor neuron structures, functions and syndromes
  - Reticulospinal and tectospinal tracts
  - Multidimensional neuroanatomy of locomotion
  - Components of the muscle stretch, Golgi tendon, and flexor withdrawal and crossed extension reflexes
- Anatomical perspectives on radiculopathies, plexopathies and peripheral neuropathies

### ***Embryology***

- Nervous system development
  - Overview of nervous system development with emphasis on the peripheral nervous system

## **INTEGUMENTARY SYSTEM**

### **Neuroanatomy**

- Dermatomes
- Innervation of the skin

### **Histology**

- Histology of the skin, including cell types, layers, glands, sensory receptors and hair

### **Embryology**

- Embryology of the skin and its derivatives

## **2. BIOCHEMISTRY**

### **MUSCULOSKELETAL**

- Biochemistry of the extracellular matrix
- Basic enzymology
- Molecular aspects of joint tissue turnover
- Fuel oxidation and ATP generation
- Cell communication (with histology)
- Muscle metabolism and metabolic myopathies
- Biochemistry of collagen diseases
- Disorders of nucleotide metabolism

**NEUROLOGICAL (OVERLAP WITH MUSCULOSKELETAL TOPICS ABOVE)**

**INTEGUMENTARY**

- Biochemistry of scurvy

**3. GENETICS**

**MUSCULOSKELETAL**

- Introduction to medical genetics and associated laboratory methods
- Genetic inheritance and variation
- Genetic mapping, measuring genetic distance/linkage
- Detection of genetic variation and genetics of bone disease
- Genetics and molecular biology of the muscular dystrophies
- DNA/Gene repair systems
- Genetic basis of inherited and sporadic tumors

**NEUROLOGICAL**

- Trinucleotide repeat diseases (including Huntington's disease)
- Mitochondrial disease

**4. MICROBIOLOGY/IMMUNOLOGY**

**MUSCULOSKELETAL**

- Defense against encapsulated bacteria (opsonization)
- Serum protein electrophoresis, normal and abnormal patterns
- Multiple myeloma, fractures and recurrent infections
- Immunology of rheumatoid disease
- Immune-mediated neuromuscular disorders
  - Guillain-Barre syndrome
  - Chronic inflammatory demyelinating polyneuropathy
  - Myasthenia gravis
  - Lambert-Eaton myasthenic syndrome
  - Polymyositis, Dermatomyositis
- Bone infections/osteomyelitis
- Virulence factors (toxins, enzymes), antibiotic resistance, bacteriological differentiation/identification
- Pathogenesis and laboratory diagnosis of bacterial and parasitic forms of myositis
- Infectious arthritis
- Central and peripheral tolerance
- Tuberculosis

- Anergy

## **NEUROLOGICAL**

- Infections causing weakness and loss of motion (overlap with Musculoskeletal above)
- Immune mediated neuropathies (overlapping with Musculoskeletal topics listed above)
- Immune mediated neuromuscular junction disorders (overlapping with Musculoskeletal topics listed above)
- Molecular mimicry
- Neurotropic viruses

## **INTEGUMENTARY**

- Microbiology of the skin, including rashes and local skin infections (viral, bacterial, fungal)
- Immune defenses of the skin
- Immune responses to infection affecting the skin
- Autoimmune disorders with cutaneous manifestations

## **5. PATHOLOGY**

### **MUSCULOSKELETAL**

- Pathology of bone fractures
  - Osteopenia
  - Osteoporosis
  - Bone tumors
  - Fracture types
  - Pathological consequences of bone fractures (local and systemic)
  - Stages of fracture repair
- Pathology of osteoarthritis, rheumatoid arthritis, seronegative spondyloarthropathies
- Pathology of infectious arthritis
- Pathology of gout and pseudogout
- Mechanisms and histopathological features of neoplasia
- Pathology of musculoskeletal lumps and masses (including metastatic disease)
- Pathology of muscular dystrophy
- Pathology of non-infectious myositis
- Metabolic and toxic myopathies

### **NEUROLOGICAL**

- Pathology of motor neuron disease
- Pathology of neuromuscular junction diseases
- Peripheral nerve disease
- Peripheral nerve and nerve sheath tumors (including neurofibromatosis types 1 and 2)

## **INTEGUMENTARY**

- Skin pathology

## **6. PHARMACOLOGY**

### **MUSCULOSKELETAL**

- Pharmacology of bone turnover and healing
- Chemotherapy concepts: anti-neoplasia
- Pain and analgesics
- Drugs for arthritis
- Aminoglycoside toxicity

### **NEUROLOGICAL**

- Pharmacology of peripheral nerve diseases
- Pharmacology of the somatic efferent nerves, neuromuscular junction and skeletal muscle

## **7. PHYSIOLOGY**

### **MUSCULOSKELETAL**

- Mechanisms of bone fracture and healing
- Cartilage damage and healing
- Mechanics of skeletal muscle contraction
- Bone blood flow
- Hormonal control of calcium and phosphate
- Calcium absorption, metabolism in relation to bone health

### **NEUROLOGICAL**

- Basic neurophysiology – membrane and action potentials, nerve conduction, synaptic transmission and neurotransmitters
- Neuron types, supporting cell types and their functions
- Axonal transport
- Proprioception and basic spinal reflexes
- Function of sensory receptors

## **INTEGUMENTARY**

- Itch receptors and neural pathways

## **8. BEHAVIOR**

### **MUSCULOSKELETAL**

- Psychosocial aspect of pain
  - Behavioral theories of pain and suffering
  - Chronic pain and mental health
  - Psychological assessment of pain

Academic Year 2011-12

- Placebo effect

## **9. NEUROLOGY**

- Neurophysiological basis of clinical electroencephalography

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 3: Gastrointestinal System
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Kirk Baston, MD/David Osborne, PhD/Marc Zuckerman, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Medical Education	13
Internal Medicine	8
Radiology	1
Surgery	2
Family Medicine	1
Emergency Medicine	1
Pathology	1

### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	✓	No	
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Specific written learning objectives are provided for each instructional session in this unit. These objectives are available to students electronically through WebCT course management system. A compilation of these objectives are available for on-site inspection. The basic science topics included in this specific unit are listed, by discipline, in the topic appendix attached to this course description.

*Briefly summarize the objectives/content areas covered in the course.*

The gastrointestinal unit in SPM consists of the following clinical presentations distributed over a 5 week time frame:

1. Dysphagia
2. Nausea and Vomiting
3. Diarrhea
4. Constipation
5. Abdominal pain
6. GI Bleed

Prior to the 2011-12 AY, this unit was paired with clinical presentations covering hematological disorders in a single, GI/Hem unit. As part of the revision of the sequencing of units related to changes in



Musculoskeletal/Neurology Unit and the Dermatology/Special Senses Unit, described elsewhere in this data base, we re-examined the entire sequencing and pace of all of the units in the Scientific Principles of Medicine course and the decision was made to uncouple the earlier GI/Hematology clinical presentations and offer them in the context of their own units. This also enabled us to end the GI unit prior to the winter break and start the Liver/Hematology unit at the beginning of the second semester of the academic year.

These clinical presentations follow the general path of food passage through the gastrointestinal tract and highlight the basic functions and abnormalities related to motility, secretion, digestion, and absorption by organs associated with the GI tract. Each provides a context for the presentation of basic science content related to the function of the mouth and esophagus, the stomach, the small intestine and the colon. The contributions of accessory organs are also presented. Pathology and etiologies of gastrointestinal disorders and region specific diseases are discussed in the context of the underlying basic science. In addition, this unit provides an introduction to general concepts related to the dual function of the nervous and endocrine systems in controlling organ function. Students are introduced to the differences smooth muscle contraction in contrast to the skeletal muscle contraction that the students encountered in the preceding unit. The themes of organ function control and smooth muscle function are revisited and reinforced in subsequent units of the SPM course based on the foundations laid in the GI unit.

During each presentation, clinician medical educators introduce the clinical presentation and the basic scheme for each presentation. Basic science educators subsequently present the basic science components related to anatomy, biochemistry, cell biology, embryology, histology, genetics, immunology, microbiology, pathology, pharmacology and physiology. At the end of the week, students meet with clinicians in small groups for processing cases using the information gathered during the week. This “deliberate practice” of processing through each scheme for clinical diagnostics reinforces the relationship between the basic sciences and the clinical application of the knowledge. In addition, this practice allows the students to directly apply the knowledge gained during the week to clinical practice.

Examples of the basic science topics addressed in this unit can be found in the Topic Appendix at the end of this course description.

### *Preparation for Teaching*

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

Academic Year: 2011-12

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents*		✓
Graduate Students		✓
Postdoctoral Fellows		✓

\*Please note: On occasions residents may accompany faculty members from their respective clinical departments to observe the Worked Case Example process and to learn about the scheme inductive approach to clinical reasoning. They do not have responsibility for leading these sessions or for assessing student performance.

*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

Not applicable.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This unit of instruction is offered at one site only, the campus of the Paul L. Foster School of Medicine.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	Scientific Principles of Medicine Unit 3: Gastrointestinal System Unit
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group evaluations

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early those areas in which they may need to devote additional time or seek additional help from faculty. Students are provided a listing of the objectives associated with missed items on their formative quizzes to facilitate targeted review.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed

and provided to the student in their e-portfolios. The summary narratives are intended to be provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, could be referred to the Grading and Promotion committee for action.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing "Strongly disagree" and 5 indicating "Strongly Agree."

<u>Unit 3Gastrointestinal System Evaluation Data</u>	<u>2010-11: GI/HEM</u>	<u>*2011- 12 :GI</u>
This unit was well organized.	4.5	4.1
The learning objectives clearly identified.	4.4	3.9
The course met identified learning objectives.	4.4	3.9
The order of clinical presentations made sense.	4.3	4.2
The basic science material was well integrated.	4.6	4.1
The amount of material was reasonable.	4.2	4.0
I knew what I was supposed to be learning and why.	4.4	3.9
The evaluation methods were fair	4.1	3.6
The Clinical presentation "schemes" helped me learn.	4.2	4.2
The process work sheets helped me learn the material.	4.0	3.9
The Work Case Examples helped me learn the material.	4.1	3.9
Work Case Examples helped me learn the material.	4.7	4.5
The self-taught modules contributed to my learning	NA	3.5
Anatomy Labs helped me learn the material.	3.4	3.3

Academic Year: 2011-12

Microbiology Labs helped me learn the material.	3.5	3.0
I learned useful knowledge and/or skills	4.6	4.4
N	44	79
Class size at date	62	85
Response Rate	71%	93%

\*Please note: in the 2011-12 Academic Year, the previously offered combine GI/HEM unit was divided into two separate units—GI and Liver/Hematology. This was done for logistical reasons (to avoid having a course/unit span the winter holiday break) and to decompress the SPM course. The content, goals, and objectives of the two units are unchanged.

*Identify major successes in the course and problems to be overcome.*

Successes:

- Students like the logical order for the unit. It makes sense to them.
- There is a very strong connection between the basic science and clinical content.
- For the most part students endorse the pace of this unit.

Challenges:

- Time is short for the coverage of material with some weeks having two clinical presentations which muddies the order of the material covered in work case examples and formative exams.
- Postponing covering the liver until the next unit is problematic given the status of the liver as a major accessory organ for the gastrointestinal system. However, we appear to have few options given the amount of time available and the timing of the winter holiday break.

We have carefully reviewed these two challenges and feel that student learning is not adversely affected. These problems are due to time constraints and the placement of the winter holiday break. Short of a major change in the academic calendar, which would likely produce other problems, it appears that we will have to live with these minor problems.

Topic Appendix: Gastroenterology Unit

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**GASTROENTEROLOGY TOPICS**

**Anatomy/Histology/ Embryology**

- Anatomy (Gross and Neuro), Embryology (ontogeny of gastrointestinal organs), Histology (microscopic anatomy of the gastrointestinal organs)
- Histology focuses on cross sectional structure of the GI tract proper
- Structure of the oral cavity, parotid region, pharynx and esophagus
- Anterior abdominal wall, Posterior abdominal wall, peritoneum
- Abdominal cavity blood supply and nerve supply
- Lymphatic drainage and spleen, hepatic portal system
- Stomach, small intestine, colon, rectum and anus structure
- Liver and pancreas (focus is on accessory functions for gastrointestinal system)

**Biochemistry**

- Glycogen Storage Diseases

**Immunology**

- Immune mechanisms of Sjogren's syndrome and systemic sclerosis (Scleroderma)
- Immune defense mechanisms of the GI tract
- Oral vaccination
- Immune mechanisms in Celiac disease
- Immune mechanisms in Immune-mediated Inflammatory Bowel Disease (IBD)
- Introduction to Tumor Immunology

**Microbiology**

***Regional***

- Introduction to three viral families associated with Gastroenteritis: Reoviridae, Caliciviridae and Astroviridae
- Introduction to Adenovirus with emphasis on the Enteric Adenoviruses 40 and 41
- The role of Helicobacter pylori and Campylobacter species in Gastritis and Enteritis:
- Common bacterial and viral causes of diarrhea
- Pathogenic E. coli and Shigella infections
- How antibiotic use can lead to diarrhea

- Parasitic causes of diarrhea
- Distinct microflora in different regions of the intestinal tract causing peritonitis.
- Clinical manifestations, Life cycles, transmission, microscopic diagnosis of associated with nematodes, cestodes and trematodes which cause abdominal distention and discomfort.
- Abnormal Liver function due to infection: Classification and differentiation between hepatitis A, hepatitis B, Hepatitis C, Hepatitis D , Hepatitis E and Hepatitis G viruses according to viral family, virion architecture, disease characteristics, replication and transmission.
- Infectious etiologies of lymphadenopathy
- Hepatomegaly or Hepatosplenomegaly due to liver parasitic infections
- Effects HIV-AIDS on gastrointestinal functions

### ***Systemic***

- Microbiological causes of food poisoning
- Peritonitis

### **Pathology**

- Congenital abnormalities of the GI tract
- Inflammatory disorders
- Infectious diseases
- Obstructive disorders
- Dysplasia
- Neoplasia

### **Pharmacology**

- Gastric absorption of Drugs
- Drugs for Gastric acid control and peptic ulcer disease
- Antiemetics
- Antidiarrheals
- Laxatives

### **Physiology**

- Topics related to regulation and control of secretion, motility, digestion and absorption within the gastrointestinal system
- Mastication/salivary secretion
- Swallowing reflex/ primary and secondary peristalsis
- Gastric motility

Academic Year 2011-12

- Gastric acid and enzyme secretions
- Digestion and absorption of diet
- Hormonal control of gastrointestinal function
- Mass movement vs peristalsis
- Defecation reflex
- Salivary and pancreatic amylase
- Pancreatic zymogen secretion and activation within the small intestine
- Bile metabolism and function
- Digestion and absorption of nutrients
- Adaptations to abnormalities associated with each of the above processes



<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 4: Liver/Hematology
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Kirk Baston, MD/David Osborne, PhD/ Marc Zuckerman, MD/Javier Corral, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	12
Department of Internal Medicine	8
Pathology	2
Family Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

As previously noted in the description of the Gastrointestinal unit of the Scientific Principles of Medicine (SPM) course, in past years the Gastrointestinal and Hematological systems were linked in a single, longer unit of instruction. As part of an overall re-structuring of the sequence of units, and to address scheduling difficulties, the decision was reached to separate the GI and Hematology into two separate units. This 6 week unit of SPM consists of the following clinical presentations:

1. Abnormal liver function tests/Jaundice
2. Abdominal Distention
3. Abnormal hemoglobin
4. Abnormal white blood cells
5. Lymphadenopathy
6. Coagulation abnormalities

The abnormal liver function tests/jaundice presentation and the abdominal distention presentation serve as a bridge from the gastrointestinal system. Normal and abnormal aspects of the liver are discussed as well as the clinical findings that can arise in disordered states. The third and fourth clinical presentations center on abnormalities of red blood cells and white blood cells and address normal structure and function as well as the range of diseases that can be seen. Significant emphasis is placed on laboratory medicine and interpretation of peripheral blood smears. The fifth clinical presentation addresses lymph nodes. Normal function is covered with a strong emphasis on the immunological aspects of the lymph node. Clinical evaluation of lymphadenopathy is discussed as well as the range of diseases that can affect the lymph

nodes including Hodgkin and non- Hodgkin lymphomas. Clinical presentation 6 addresses disorders of coagulation. This week is a comprehensive tour of hemostasis and thrombosis. Disorders of bleeding and thrombosis are covered with a strong emphasis on laboratory evaluation of these disorders

Clinician medical educators introduce the clinical presentation and the basic scheme for each presentation. Basic science educators subsequently present the basic science components related to anatomy, biochemistry, cell biology, embryology, histology, genetics, immunology, microbiology, pathology, pharmacology and physiology. At the end of the week, students meet with clinicians in small groups review and analyze cases using the information covered during the week. This “deliberate practice” of processing through each scheme for clinical diagnostics reinforces the relationship between the basic sciences and the clinical application of the knowledge.

The basic science topics addressed in this unit can be found in the Topic Appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents	✓	
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

An advanced resident participated in worked case example sessions for this unit. The resident was provided the same materials as all other faculty members. The unit director observed this resident and

gave him feedback on group process and is confident in this resident's ability to provide excellent instruction and guidance.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This course is taught solely on the campus of the PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine Unit 4: Liver/Hematology
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty. Students are provided a listing of the objectives associated with missed items on their formative quizzes to facilitate targeted review.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the associate dean for student affairs, the senior associate dean for

medical education and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to be provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, could be referred to the Grading and Promotion committee for action.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing “Strongly disagree” and 5 indicating “Strongly Agree.”

Hematology Evaluation Results	2010-2011: Gastrointestinal/Hem atology	*2011-2012: Liver/ Hematology
Well Organized	4.5	4.4
Learning objectives clearly identified.	4.4	4.3
The course met identified learning objectives.	4.4	4.3
The order of clinical presentations made sense	4.3	4.3
Basic Science material was well integrated.	4.6	4.3
Amount of material presented was reasonable.	4.2	4.1
I knew what I was supposed to be learning and why.	4.5	4.2
Evaluation methods were fair	4.1	4.0
Clinical presentation "schemes" contributed to my learning	4.2	4.2
Process work sheets contributed to my learning	4.0	4.1
Lectures helped me learn the material.	4.1	4.3
Work Case Examples helped me learn the material.	4.7	4.5
Anatomy Labs helped me learn the material.	3.4	3.1
Self-taught modules contributed to my learning	NA	3.9
I learned useful knowledge and/or skills	4.6	4.5
N	44	82
Class size at date	57	83
Response Rate	77%	99%

\*Please note: in the 2011-12 Academic Year, the previously offered combine GI/HEM unit was divided into two separate units—Unit 3: GI, and Unit 4, Liver/Hematology. This was done for logistical reasons

(to avoid having a course/unit span the winter holiday break) and to decompress the SPM course. The content, goals, and objectives of the two units are unchanged.

*Identify major successes in the course and problems to be overcome.*

Successes:

- This unit is well received by the students and evaluations are very good
- Well organized
- Student evaluations indicate that work case examples were very strong

Challenges:

The unit has a very large proportion of material for the amount of time allotted for its delivery. Some sections such as liver and lymph node need more time. We have been very efficient at placing this large amount of material in the unit but we should continue to discuss this issue in order to maximize student understanding. We will be discussing this further with the SPM directors.

Topic Appendix: Liver/ Hematology Unit

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**Anatomy/Histology/ Embryology**

- Structure of Blood
- Bone marrow and blood development
- Lymphatic tissues including spleen

**Biochemistry**

- Iron/ Hemoglobin metabolism
- Erythrocyte metabolism
- Plasma protein synthesis and processing
- Serum markers of disease states
- Hematologic disorders as models of biochemical disorders

**Genetics**

- Genotypes and Allelic Frequency
- Genetics of Sickle Cell Anemia

**Immunology**

- Immune function of the spleen
- Immunology of HIV
- Mechanisms of immune-mediated anemia
- Immunology of blood transfusion
- Agglutination reactions
- Cytokines in leukocyte maturation
- Leukocyte biology
- Immunology of Bone marrow transplantation
- Review of T and B cell activation
- Review of the organization and function of lymph nodes
- Sarcoidosis
- Immune mechanisms of platelet destruction
- Immune mechanisms in Wiskott - Aldrich syndrome
- Antiphospholipid syndrome
- Waldenström's Macroglobulinemia and Multiple Myeloma

Academic Year \_\_\_\_\_

- Significance of + Coombs' test in neonates

### **Microbiology**

- Pathogenesis of HIV in terms of transmission, cell entry, genome replication and cell exit.
- Opportunistic infections and/or associated diseases in patients with HIV-AIDS
- Mononucleosis caused by Epstein Barr Virus (EBV): virion structure, genomic architecture, transmission, spread and evasion of the immune system.
- Epstein-Barr Virus-induced lymphoproliferative Diseases
- Infectious etiologies of lymphadenopathy
- Hemoflagellates
- Hepatomegaly or Hepatosplenomegaly due to liver parasitic infections
- Viral hemorrhagic fever
- Platelet levels as a sign of infection
- How disruption of normal flora can lead to depression of Vitamin K levels and bleeding

### **Pathology**

- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of liver disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of red cell disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of white cell disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of lymph node disorders
- Pathogenesis, morphologic features, clinical manifestations, and diagnosis of disorders involving coagulation

### **Pharmacology**

- Hematopoietic and megakaryocytic growth factors
- Anticoagulant, thrombolytic and antiplatelet drugs
- Chelators and heavy metal therapies

### **Physiology**

- General structure and functions of blood
- Hemopoiesis/erythropoiesis
- Hemostasis
- Relation of blood composition to osmosis/osmotic pressure



<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 5: Cardiovascular/Pulmonary
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Nadah Zafar, MD/Herb Janssen, PhD/David Osborne, PhD/George Martinez-Lopez, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	17
Department of Internal Medicine	10
Department of Emergency Medicine	7
Department of Anesthesiology	1
Department of Family Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

Specific learning objectives are published for each of the 12 component clinical presentations included in this integrated unit. The objectives were developed and reviewed by the clinical and basic science faculty to insure appropriate coverage and integration of the material. The objectives are available online for both the faculty and the students. A list of the basic science topics addressed in this unit can be found in the topic appendix following this description. The clinical presentations addressed in this unit of SPM are:

1. Chest discomfort
2. Mediastinal mass (self-taught unit)
3. Abnormal heart sounds
4. Heart murmurs
5. Syncope
6. Palpitations
7. Abnormal arterial pulse
8. Abnormal blood pressure, hypertension and shock
9. Dyspnea
10. Cough and wheezing
11. Cyanosis
12. Hemoptysis

The sequence of these clinical presentations has been structured so that the concepts developed during the study of one topic provide a foundation for the subsequent topic. The basic medical science disciplines are interwoven. Basic information is provided for each clinical presentation including a brief definition and a statement of its clinical significance. A list of the potential causes for the presentation is provided along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation provide the basis for discussion of each of the basic science principles, including underlying anatomic, biochemical, and pathophysiological concepts.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the Department of Medical Education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		x
Graduate Students		x
Postdoctoral Fellows		x

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This unit is taught on the campus of the PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Unit 5: Cardiovascular/Pulmonology
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment form

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment weekly. Typically, these items are multiple choice questions written in the USMLE vignette format and are selected from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group facilitators complete an evaluation on student participation and performance in WCE sessions. This evaluation includes a free text component for narrative comments. At the end of the year the associate dean for student affairs, the senior associate dean for medical education, and the college masters review all student comments and compile a summary narrative. This is formative feedback. However, if there are serious problems that have not been resolved over the course of the year, the student can be referred to the grading and promotion committee for action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

We have the faculty members needed to deliver the content of this unit. Educational space is ample with state-of-the-art educational technology resources and a clinical learning and simulation center that is outstanding. The unit is supported by a full-time course coordinator and a full-time assessment coordinator.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous end-of-unit on-line evaluations utilizing a 5 point scale with a 1 indicating disagreement/dissatisfaction and a 5 indicating a high level of agreement/satisfaction.

<b>Cardiovascular &amp; Pulmonary Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.9	3.8
The learning objectives were clearly identified.	4.2	3.9
The course met the identified learning objectives.	4.1	3.9
The order of clinical presentations made sense to me.	4.0	3.8
The Basic Science material was well integrated.	4.1	4.1
The amount of material presented was reasonable.	4.1	3.6
I knew what I was supposed to be learning and why.	4.2	4.0
The evaluation methods were fair	4.1	3.7
The Clinical presentation "schemes" contributed to my learning.	4.1	3.8
The process work sheets contributed to my learning	4.1	3.8
The lectures helped me learn the material.	4.0	3.9
The Work Case Examples helped me learn the material.	4.6	4.3
The self-taught modules contributed to my learning	--	3.3
Anatomy Labs helped me learn the material.	3.5	3.7
Overall, I've learned useful knowledge and/or skills	4.4	4.3
N	42	83
Class size at date	57	83
Response Rate	74%	100%

*Identify major successes in the course and problems to be overcome.*

**Successes:**

- This unit is well received by students and consistent over time.
- USMLE Step 1 scores for class of 2013 were above the national average.

- High level of integration with Medical Skills course reinforces clinical relevance of basic science content.

Challenges:

- The cardiopulmonary unit is a long unit and students feel that the amount of material covered on the final examination is challenging. Response: We will discuss unit length with the unit and course committee to consider either dividing the unit as was done last year for GI-Hematology or consider giving a mid-unit and final examination to decompress assessment.
- Student opinion is divided about the sequencing of clinical presentations. Some students recommend shifting the first clinical presentation on chest discomfort to the end of the unit to allow for coverage of both cardiovascular and pulmonary causes. Response: The unit directors feel that there is some merit in this recommendation and will address this with the unit committee and course committee.
- There were a number of free text student comments about the length and complexity of the process work sheets in this unit. Response: The unit directors will review and edit the process worksheets.
- There has been turn-over in the physician leadership of this unit. Response: A new physician unit director is being recruited internally at PLFSOM. The basic science unit directors will provide continuity for the unit.

## **1. ANATOMY**

### **Cardiovascular**

- Thoracic wall
- Mediastinum
- Heart & pericardium
- Blood and lymph, vessels, nerves
- Radiological anatomy
- Lymphatic system
- Blood vessels and lymphatic vessels
- Heart
- Heart Valves

### **Pulmonary**

- Nose, nasal cavity, paranasal sinuses, and mouth
- Pharynx, larynx, trachea and bronchi
- Thoracic wall, pleurae, and lungs
- Thoracic diaphragm
- Pulmonary blood vessels

## **2. BIOCHEMISTRY**

### **Cardiovascular**

- General objectives in cardiovascular biochemistry
- Generation and use of energy by the heart
- Cholesterol metabolism and blood lipoproteins
- Mechanisms of cell injury and cell death
- Origin of cardiac enzymes
- Glycolysis in muscle and liver
- Protein metabolism
- Troponin

### **Pulmonary**

- Biochemistry of oxygen transport
- Acquired methemoglobinemias

- Hemolysis and heme oxidation

### **3. EMBRYOLOGY**

#### **Cardiovascular**

- Congenital malformations of the heart and great vessels
- Development of the heart, great vessels, and primitive circulation
- Angiogenesis
- Development of the heart and great vessels

#### **Pulmonary**

- Embryological development of the respiratory system
- Cardiopulmonary alterations at birth

### **4. GENETICS**

#### **Cardiovascular**

- Familial hypercholesterolemia
- Familial dysbetalipoproteinemia
- Marfan syndrome
- Familial hypercholesterolemia
- Long QT syndrome

#### **Pulmonary**

- Cystic fibrosis
- Alpha 1-antitrypsin deficiency

### **5. HISTOLOGY**

#### **Cardiovascular**

- Tissue comprising the vascular system
- Characteristics of heart tissue
- Cell –cell communication in the heart
- Characteristics of cardiomyocytes

#### **Pulmonary**

- Histology of the pleura, conducting airways, and functional respiratory units
- Characteristics of tissue involved in gas exchange

### **6. IMMUNOLOGY**

#### **Cardiovascular**

- Rheumatic heart disease

### **Pulmonary**

- Asthma to Type I Hypersensitivity
- Cytokines and chemokines involved in airway inflammation
- Chronic allergen exposure

## **7. MICROBIOLOGY**

### **Cardiovascular**

- Intravascular infections
- Bacteria associated with septic shock
- Septicemia and bacteremia
- Endocarditis and pericarditis
- Viruses associated with myocarditis
- Rheumatic fever

### **Pulmonary**

- Bacteria-associated lung infections
- Viruses causing infections of the respiratory system
- Fungal infections of the lung
- Basic immune mechanisms
- Role of immune mechanisms in respiratory disease

## **8. NEUROANATOMY**

### **Cardiovascular**

- Areas of brain involved in cardiovascular regulation
- Sympathetic and parasympathetic control of cardiovascular system

### **Pulmonary**

- Areas of brain involved in regulation of breathing
- Nerves involved in transmission of afferent and efferent respiration control
- Location and identification of sensory respiratory signals

## **9. NEUROSCIENCE**

### **Cardiovascular**

- Pacemaker cell
- SA and AV node activity
- Conduction in heart muscle
- EKG analysis
- Fibrillation
- Heart Blocks



Academic Year: 2011-12

- Neural and humeral influences

### **Pulmonary**

- Respiratory rhythm generator
- Neural control mechanism

## **10. PATHOLOGY**

### **Cardiovascular**

- Pathophysiology of shock and heart failure
- Atherosclerosis
- Ischemic heart disease
- Hypertensive cardiovascular disease
- Cor-pulmonale
- Valvular heart disease
- Myocardial diseases
- Cardiac therapeutic interventions
- Pericardial diseases
- Cardiac neoplasia
- Aneurysms and dissection
- Vasculitis
- Diseases of veins and lymphatics
- Vascular tumors

### **Pulmonary**

- Normal lung vs. lung with congenital anomalies/disorders
- Atelectasis
- Acute lung injury
- Obstructive airway disease
- Interstitial (restrictive) lung disease
- Diseases of vascular origin
- Pulmonary infections
- Lung transplantation
- Tumors of the lung
- Pleura
- Ear, nose, and air sinuses
- Larynx

## **11. PHARMACOLOGY**

### **Cardiovascular**

- Overview of receptors involved in autonomic pharmacology
- Cholinergic receptor stimulants
- Cholinergic receptor and ganglionic antagonists
- Adrenergic receptor agonists
- Adrenergic receptor antagonists
- Nitric oxide
- Antihypertensive agents
- Drugs used for treatment of myocardial ischemia
- Pharmacological treatment of heart failure
- Phosphodiesterase inhibitors
- Antiarrhythmic drugs
- Agents used in hyperlipidemia
- Diuretics
- Therapy of cardiovascular disease

### **Pulmonary**

- Interpreting dose-response curves
- Overview of receptors involved in autonomic pharmacology
- Cholinergic receptor stimulants
- Autonomic pharmacology
  - cholinergic receptor and ganglionic antagonists
  - adrenergic receptor agonists
  - adrenergic receptor antagonists
- Nitric oxide and vascular reactivity
- Inhalational anesthetic agents, therapeutic gases and toxic vapors
- Pharmacological therapy of pulmonary disorders
- Antimycobacterial drugs
- Antibacterial drugs used in the treatment of pneumonia
- Histamine and antihistamines
- Kinins and their receptor antagonists
- Adrenocortical steroids and other anti-inflammatory agents
- Cancer chemotherapy

## **12. PHYSIOLOGY**

### **Cardiovascular**

- Cardiovascular circuitry & hemodynamics
- The peripheral circulatory system
- The microcirculation and lymphatics
- Cardiac electrophysiology and the electrocardiogram
- The cardiac pump
- Regulation of arterial pressure and cardiac output
- Cellular physiology of cardiac and smooth muscle
- Special circulations
- Integrated control of the cardiovascular system

### **Pulmonary**

- Respiratory system structure and function
- Respiratory mechanics
- Gas transport and tissue gas exchange
- Acid-base balance
- Pulmonary gas exchange
- Perfusion of the lung
- Ventilation / perfusion
- Control of breathing
- Respiratory physiology in different environments
- Monitoring respiratory function

PART B. REQUIRED COURSE FORM	
Course title:	Scientific Principles of Medicine Unit 6: Integration of Systems
Sponsoring department or unit:	Department of Medical Education and Department of Emergency Medicine
Name of course directors:	Elmus G. Beale, PhD, Robert Stump, MD, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course, and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Department of Emergency Medicine	9
Department of Medical Education	3

### Course Objectives

*Are there written objectives for the course? (check)*

Yes	X	No	
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*Briefly summarize the objectives/content areas covered in the course.*

Integration of Systems is a 2 week “review” unit addressing material covered in the Scientific Principles of Medicine course over the course of the year. This review is conducted in the context of emergency medicine and serves as an introduction to that field.

The eight one hour lecture sessions associated with this integrative unit include the following:

- 1- Introduction to Emergency Medicine
- 2- Pharmacology and Emergency Medicine
- 3-Cardiac Anatomy and Myocardial Infarction
- 4-Cardiac Dysrhythmias
- 5- Pulmonary Problems
- 6-Neurology and Emergency Medicine
- 7-Infections and Emergency Medicine
- 8-Antibiotics and Emergency Medicine

In addition to the lectures listed above, students participate in a series of clinical simulation exercises supervised by faculty and residents in emergency medicine—“Coding of the Rich and Famous—utilizing the high fidelity simulator resources of the PLFSOM center for Advanced Teaching and Assessment in

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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Clinical Simulation. Assessment is based on a rubric addressing general principles of emergency medicine, application of basic science principles in discussion of simulation experience, and teamwork.

**General objectives:**

- Apply the general principles of the management of the emergent medical or trauma patient, including the ABCs, airway management, and defibrillation.
- Apply knowledge of the characteristics of the autonomic nervous system and the neurotransmitters involved to the pharmacological agents used in Emergency Medicine.
- Analyze the EKG in terms of heart anatomy and physiology to diagnose pathologies, if present.
- Apply knowledge of lung anatomy and physiology to the treatment of asthma and pneumonia.
- Apply knowledge of the classes of common antibiotics to the appropriate diagnosis and treatment of infections.

Specific learning objectives have been developed for each of the instructional sessions included in this unit.

The final integrative component of this unit is “Tank-Side Grand Rounds.” Over the course of the year students electronically record findings on their cadavers as SOAP notes utilizing an on-line Donor Electronic Medical Record. These “findings” served as triggers for the development of learning prescriptions and self-directed study. During this unit each dissection team is given 30 minutes to report on their major findings and to answer questions posed by faculty and fellow students. Each member of the team participates in the presentation and are assessed by a rubric to provide feedback on behaviors associated with attitudes, knowledge, presentation skills, and analytic thinking.

**Preparation for Teaching**

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents	X	
Graduate Students		X
Postdoctoral Fellows		X

*If yes, describe how they are informed about the course objectives and prepared for their teaching role?*

Senior residents, under faculty supervision, participate in the “Coding of the Rich and Famous” simulation exercises. To prepare them for their role, the emergency physician unit director reviewed the case scenarios, session goals and objectives, and discussed the assessment rubric designed to evaluate student performance.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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*If the entire course is taught at more than one site (e.g., at geographically separate campuses), describe how instructional staff at all sites are oriented to the objectives and grading system.*

This course is taught at one site—the Paul L. Foster School of Medicine.

**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last two classes:*

Year:	NA	NA	NA
Score:	NA	NA	NA

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

X	Multiple-choice, true/false, matching questions		Laboratory practical items
	Fill-in, short answer questions		Problem-solving written exercises
	Essay questions or papers	X	Presentations
	Oral exams		Preceptor ratings
	OSCE or standardized patient exam	X	Other (describe) Simulation performance assessment rubric/Rubric based assessment of Donor Medical Record

*Briefly describe any formative assessment activities that occur during the course (practice exams, quizzes, etc.) including when during the course they occur.*

A formative DEMR evaluation is given to students at the beginning of Unit 5 in February so that students can better understand what is expected as they begin their final preparations for Tank-side Grand Rounds in Unit 6. In addition, a formative Tank-side Grand rounds evaluation is offered at the beginning of Unit 6 to provide feedback to improve presentations prior to the final presentation. About 1/3<sup>rd</sup> of the teams take advantage of this opportunity.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

Yes	X	No	
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Students receive narrative feedback on the rubrics employed to assess their performance in the “Coding of the Rich and Famous” exercises, their DEMR entries, and their presentations for “Tanks-side Grand Rounds.”

**Course Outcomes/Evaluation**

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*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

We have sufficient faculty and resources to teach this course. This course is taught primarily by faculty and residents from the Department of Emergency Medicine. These faculty members were able to supervise the students in “Coding the Rich and Famous” in shifts with no difficulty. The Paul L. Foster School of Medicine has a state-of-the-art high fidelity simulation center equipped with programmable mannequins that respond in real time in physiologically appropriate ways.

*Provide a summary of student feedback on the course (and any other available evaluation data). If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line end of unit evaluations employing a 5 point scale with 1 representing dissatisfaction/disagreement and 5 representing high satisfaction/high agreement. Please see results below.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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<i>Unit 6: Integration of Systems</i>	<i>2010-2011</i>	<i>2011-2012</i>
This unit was well organized.	4.1	4.4
The learning objectives were clearly identified.	3.8	4.3
The course met the identified learning objectives.	3.9	4.4
The order of clinical presentations made sense to me.	4.0	4.2
The basic science material was well integrated.	4.2	4.4
I knew what I was supposed to be learning and why.	3.7	4.3
The amount of material presented was reasonable.	3.3	4.4
The methods used to evaluate my performance provided fair measures of my effort and learning.	3.5	4.3
The lectures helped me integrate information from prior units.	4.1	4.4
The Clinical presentation "schemes" helped me learn the material.	3.9	3.9
Prior process work sheets were useful in this unit.	4.2	3.7
The self-taught modules helped me integrate information from prior units.	Not asked	3.8
Tank-side rounds helped me integrate information from prior units.	3.6	3.9
The DEMR caused me to identify gaps in my knowledge relevant to my donor's condition.	3.6	3.8
The DEMR prompted me to research topics relevant to my donor's condition.	3.9	3.9
Simulation Lab helped me integrate information from prior units.	4.2	4.2
Overall I learned useful knowledge and/or skills during this unit.	4.2	4.5
N	54	72
Class size at date	57	83
Response Rate	96%	87%

*Identify major successes in the course to date and problems to be overcome.*

**Success:**

- Students report a high level of satisfaction with this unit and enjoy participating in the simulation exercise "coding the rich and famous."
- Development of integrated lecture series reviewing host-defense processes, the musculoskeletal and neurological systems, GI-Hematology systems, and cardio-pulmonary systems.



**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	<b>Scientific Principles of Medicine Unit 6: Integration of Systems</b>
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- Development of simulation protocols to expose students to emergency situations related to the above organ systems.
- Tank-Side Grand Rounds provides students an excellent opportunity to share results of self-directed study based on anomalies observed in their cadavers.

**Problems/Challenges:**

- Some faculty members found the evaluation rubrics for assessing the Tank-side Grand Rounds Presentations and for the Coding of the Rich and Famous exercise complex. We will review and revise as necessary.
- Students report that the amount of effort needed for the preparation of the Tank-side Grand Rounds presentation was disproportionate to the 5% weighting for the final Unit 6 grade. We are discussing increasing this weighting.
- New “Coding of the Rich and Famous” scenarios need to be developed as the content of some of the existing scenarios has been revealed.
- A number of faculty members feel that the Tank-side Grand Rounds exercise should be done in year 2 after students have completed their study of all organ systems. This recommendation is under consideration by the SPM course committee. A recommendation will be forwarded to the CEPC in the fall of 2012.

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 7: Central Nervous System/ Special Senses
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	Richard Brower, MD/Dale Quest, PhD/Debra Bramblett, PhD/Asa Black, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	13
Department of Surgery	7
Department of Emergency Medicine	3
Department of Internal Medicine	1
Department of Family Medicine	1
Department of Neurology	2
Department of Radiology	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This unit is organized into three major components: neurological, with an emphasis on the central nervous system (the peripheral nervous system is integrated into the musculoskeletal/integumentary system unit in year 1), ophthalmology, and otolaryngology. This unit of SPM, the first unit of year 2, includes the following clinical presentations:

1. Gait disturbance
2. Movement disorders
3. Headache
4. Seizures
5. Stroke and Aphasia
6. Delirium, Stupor, and Coma
7. Red Eye
8. Diplopia/Strabismus
9. Smell/Taste
10. Hearing loss
11. Dizziness/Vertigo

This unit presents an integrated approach to the structure, function, and organization of the central nervous system in the context of major neurological abnormalities affecting vision, hearing, smell and

taste. As previously described for the other units in the Scientific Principles of Medicine course, each clinical presentation includes a schematic representation illustrating a clinical approach to the presentation as a device for organizing thinking about the problem and for organizing foundational science content and concepts necessary for understanding underlying pathophysiological processes. The clinical reasoning processes are incorporated into a process work sheet based on the scheme that can be used as a resource for analyzing cases presented in small group “worked case example” sessions. Each of the basic science disciplines provides learning objectives related to the appropriate scientific concepts of anatomy (including gross and microscopic anatomy, embryology, neuroanatomy and radiographic anatomy), biochemistry, physiology, genetics, immunology, microbiology, pharmacology, and pathology related to the organ systems and clinical problems addressed in the unit. Example basic science topics included in this unit can be found in the appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		X
Graduate Students		X
Postdoctoral Fellows		X

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

The course is taught at only one site, the campus of the Paul L. Foster School of Medicine.

**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not Applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty. To facilitate this review, students are also provided copies of the learning objectives associated with items they missed on the formative exam.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Small group “worked case example” facilitators complete a brief assessment of student performance in the small group session and they are encouraged to provide written comments on each student in their groups. These assessments and comments are uploaded to the student’s e-portfolio. In addition, on an

annual basis, the college masters, associate dean for student affairs, and the senior associate dean for medical education, review all small group evaluation forms and comments and based on this information they draft a summary narrative noting student strengths and areas for further growth and development.

<b>Course title:</b>	Scientific Principles of Medicine Unit 7: CNS/Special Senses Unit
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This is provided primarily as formative feedback. However, if serious problems are detected that persist despite feedback and advisement, the student may be referred to the Student Grading and Promotion Committee for discussion with the student and the determination of appropriate remedial action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This interdisciplinary unit is taught by faculty drawn from a number of clinical departments as well as the basic science and clinical faculty members in the department of medical education. We have sufficient faculty to implement this unit in the SPM course. As class size expands over the next few years to an eventual class of 100 students, we will need to enlarge our pool of potential small group facilitators.

There is ample teaching space available for the course, including a small classrooms, lecture space, laboratories, clinical simulation laboratories, and gross anatomy dissection laboratories. Computers, computer software, library resources, and the personnel needed to support computer-based and library-based instruction are adequate to meet the teaching needs.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing “Strongly disagree” and 5 indicating “Strongly Agree.”

<b>Special Senses Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.3	3.6
The learning objectives were clearly identified.	3.2	3.8
The unit met the identified learning objectives.	3.2	3.9
The order of clinical presentations made sense to me.	3.5	3.8
The Basic Science material was well integrated.	3.2	3.8
The amount of material presented was reasonable.	3.4	4.0
I knew what I was supposed to be learning and why.	3.2	4.0
The evaluation methods were fair	3.6	3.8
The Clinical presentation "schemes" contributed to my learning	3.1	3.3
The process work sheets contributed to my	2.6	3.0
The lectures helped me learn the material.	3.6	3.9
The Work Case Examples helped me learn the material.	3.6	3.8
Anatomy Labs helped me learn the material.	2.8	3.6
Overall, I learned useful knowledge and/or skills	3.7	4.1
N	18	62
Class size at date	37	62
Response Rate	49%	100%

*Identify major successes in the course and problems to be overcome.*

Successes:

- This Unit fulfills its essential educational objectives. In addition to our typical combination of full-time MS1-2 Medical Educators and faculty recruited from the clinical departments, this success has been achieved through creative utilization of community-based faculty resources in the clinical specialties of ophthalmology and otolaryngology. Given their high value, this approach will remain essential even as the school develops and recruits full-time faculty in these disciplines.

Challenges:

- Maintaining the commitment and enthusiasm of our non-salaried community-based faculty in the relatively high value specialties of ophthalmology and otolaryngology will require substantial effort, as will development and integration of full-time faculty in these disciplines.
- This Unit currently received substantial faculty support from the Department of Neurology and that Department is undergoing re-development due to natural/expected levels of attrition. Although this creates some minor challenges, there remains adequate support for the neurological components of the MS1-2 curriculum and substantial growth of the Department of Neurology is anticipated. Despite these challenges, we will be able to deliver this unit in the future.
- Compared to other Units, the clinical schemes and process worksheets for this Unit received less favorable student evaluations. The Unit Co-Directors and faculty presenting the Clinical Schemes have reviewed these materials and consider them adequate. As our faculty resources expand and new contributors with relevant expertise are identified, these materials will undergo review and revision. If deemed necessary through the centralized/CEPC-led course review process, external consultants may be engaged to review and suggest improvements for these materials

## Topic Appendix: CNS and Special Senses Unit

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### 1. ANATOMY / HISTOLOGY / EMBRYOLOGY

#### **Gross Anatomy**

- Spinal Cord
- Brainstem and Cerebellum
- Brain
- Orbit and oculus
- Tongue and papillae
- Vestibular and auditory anatomy
- Larynx
- Radiographic (visual) anatomy (X-rays, CTs, MRIs, etc.)

#### **Microscopic anatomy/histology**

- Nervous tissues
- Eye
- Tongue and papillae

#### **Embryology**

- Development of the nervous system and special senses
- Nervous system teratology

#### **Neuroanatomy**

- Spinal cord
- Brainstem and cranial nerves
- Cerebellum
- Basal ganglia
- Retina
- Optic chiasm
- Optic tract
- Visual cortex
- Lateral geniculate nucleus
- Taste and Olfaction
- Cochlea
- Vestibular apparatus
- Vestibulocochlear nerve, medial geniculate nucleus, auditory pathway
- Blood supply/vasculature of the central nervous system



## **2. MICROBIOLOGY/IMMUNOLOGY**

- Infectious etiologies of myelitis, meningitis and encephalitis (bacteria, viruses and fungi)
- Infectious etiologies of eye disease (bacteria, viruses and fungi)
- Infectious etiologies of ear disease (bacteria, viruses and fungi)

## **3. NUTRITION**

- Sensory disorders associated with vitamin deficiency
- Sensory disorders associated with vitamin excess
- Role of nutrition in selected sensory disorders

## **4. PATHOLOGY**

- Central nervous system pathology
- Cerebrospinal fluid analysis
- Eye and visual system pathologies
- Ear, auditory and vestibular system pathologies
- Gustatory and Olfactory disorders

## **5. PHARMACOLOGY**

- Drugs for ophthalmic indications
  - mydriatics and miotics
  - reduce intraocular pressure
  - treat infections
  - treat retinal degenerative disorders
- Pharmacology of movement disorders
- Drugs for ear, nose and throat infections
- Drugs for epilepsy

## **6. PHYSIOLOGY**

- Regulation of intracranial pressure
- Cerebrospinal fluid production, circulation and elimination
- Neuroscience
  - Receptor functions of the retina and photo-transduction
  - Central visual pathways
  - Visual neurophysiology
  - Pupillary reflexes and control of eye movements
  - Auditory and vestibular neurophysiology
  - Gustatory neurophysiology
  - Function of the cerebellum and its pathways

Academic Year: 2011-12

- Neuroscience of movement disorders
- Physiological basis of electroencephalography
- Neuroplasticity

### **7. GENETICS**

- Mitochondrial diseases
- Trinucleotide repeat diseases

### **8. MOLECULAR AND CELLULAR BIOLOGY**

- Amyloid diseases
- Inborn errors of metabolism
- Toxic and metabolic mechanisms of delirium, stupor and coma

### **9. BEHAVIOR AND PSYCHOLOGY**

- Delirium
- Somatoform disorders
- Neuropsychology of learning and memory
- Neuropsychology of language

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 8: Renal System
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Stephen Sandroni, MD/Amy Trott, PhD/Herb Janssen, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	13
Department of Internal Medicine	5
Department of Emergency Medicine	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

In prior years the renal and endocrine systems were joined in a single unit of the Scientific Principles of Medicine course. However, as described elsewhere in this database, a general review of the timing, sequence, and organization of the organ system units resulted in the decision to “uncouple” the renal and endocrine systems and make these systems independent units within the overall course. However, the content and the clinical presentations that had previously been included in the joined unit remain largely unchanged.

The 6-week renal unit focuses on fluids, electrolytes, homeostatic mechanisms, and the role of the kidney in the process of regulation. The clinical presentations associated with this unit include the following:

1. Abnormalities of renal function
2. Disorders of serum sodium
3. Intrinsic renal disease
4. Abnormalities of hydrogen ion concentration
5. Renal failure: acute injury
6. Renal failure: chronic renal disease

This unit and the endocrine unit which follows are presented as model homeostatic systems with an emphasis of content related to biochemistry and physiology. Gross and microscopic anatomy is integrated with gross and microscopic anatomic pathology and is also correlated with radiographic anatomy. Microbiological, immunological and pharmacological content are also addressed. The sequence of clinical presentations has been structured so that the concepts developed during the study of

one topic provide a foundation for the subsequent topic. As with the other courses in the SPM sequence, basic information is provided for each clinical presentation including a brief definition, a statement of its clinical significance, and a list of the potential causes for the presentation. “Process worksheets” and “worked case examples” are employed by the small groups as in previous SPM units. The major clinical emphasis is on adult conditions, but pediatric renal conditions are also presented.

A list of basic science topics that are covered in this unit can be found in the attached Topic Appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		X
Graduate Students		X
Postdoctoral Fellows		X

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This unit of instruction is offered at a single site on the campus of the Paul L. Foster School of Medicine.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine: Unit 8 Renal
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty. To facilitate this process, students are provided a list of learning objectives associated with items they missed on the formative assessment.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group facilitators for weekly Worked Case Example sessions are asked to complete an assessment form on each student in the group. This form includes space for narrative comments. These assessment forms are posted in each student's e-portfolio.

## COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

The unit is taught as an interdisciplinary component of the Scientific Principles of Medicine course drawing faculty from different departments in the Paul L Foster School of Medicine. The basic science faculty and many of the clinical faculty teaching in the course are members of the Medical Education Department. Other clinical faculty members from the Department of Internal Medicine assist in the clinical integration. A course coordinator and assessment coordinator for year 2 courses/units provides logistical assistance and assistance with the day-to-day management of the delivery of the unit. In addition IT and Audiovisual staff are available to assist course directors and faculty. There is ample teaching space available for the course, including a sufficient number of small group classrooms, lecture space, laboratories, clinical simulation laboratories, and gross anatomy dissection space. Computers, computer software, library resources, and the personnel needed to support computer-based and library-based instruction are adequate to meet the teaching needs.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing "Strongly disagree" and 5 indicating "Strongly Agree."

<b>Unit 8 Evaluation Data</b>	<b>2010-2011 Renal/ Endocrine</b>	<b>*2011-2012 Renal</b>
This unit was well organized.	3.5	3.6
The learning objectives were clearly identified.	3.9	4.0
The unit met the identified learning objectives.	3.9	4.0
The order of clinical presentations made sense to me.	3.5	3.7
The Basic Science material was well integrated.	3.5	3.7
The amount of material presented was reasonable.	3.7	4.2
I knew what I was supposed to be learning and why.	4.0	3.9
The methods used to evaluate my performance were fair	3.9	3.7
The Clinical presentation "schemes" contributed to my learning.	3.9	3.7
The Process Worksheets contributed to my learning.	3.7	3.5
The lectures helped me learn the material.	4.1	3.6
The Work Case Examples helped me learn the material.	3.9	4.0
The Anatomy labs helped me learn the material.	2.7	3.5
Overall, I've learned useful knowledge and/or skills during this unit.	4.3	4.2
N	24	57
Class size at date	37	58
Response Rate	65%	98%

\*Please note: In 2011-12, the renal and endocrine components of the curriculum were divided into two units rather than being integrated into one. The content for each discipline remained the same.

*Identify major successes in the course and problems to be overcome.*

**Successes:**

Student performance on renal questions on the USMLE Step 1 was among the two best areas in our curriculum. Informal feedback from clinical clerkship faculty has indicated that our third year students are performing as well as residents in areas of acid-base and electrolyte abnormalities.

**Challenges:**

Optimal delivery of our core physiology and pathology remains a challenge. Student evaluations favor passive delivery modes over more active engagement on their part, but their performance has not suffered from more active modes. Our informal survey of student knowledge of renal pathology, done a few months after the course ended, suggested that students were not yet able to use their knowledge in a successful analytic way. Apparently their own additional study later in the year helped them to reach a higher level of learning. Our experience mirrors that of other schools we are in contact with via a renal teaching listserv that we subscribe to. We lean toward reduced formal lecturing with increased use of problem-solving sessions supervised by faculty. Specifically we are looking to accumulate additional teaching cases that are more complex than our Worked-Case Examples, and use these as a springboard for sessions requiring higher level problem solving on the part of the students.

Topic Appendix: Renal Unit

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**1. ANATOMY / HISTOLOGY / EMBRYOLOGY**

- Evolution of the nephron from marine life to terrestrial mammals
- Urinary system
- Visual anatomy
- Radiological anatomy
- Embryological development of the urogenital system
- Histology of kidneys and urinary tract

**2. BIOCHEMISTRY**

- Renal metabolism
- Hormonal regulation of salt and water balance

**3. GENETICS**

- Renal disease of genetic origin

**4. MICROBIOLOGY/IMMUNOLOGY**

- Urinary tract infections
- Sexually transmitted diseases
- Bacteriology, virology, and parasitology
- Transplantation, tumor immunity and immunotherapy

**5. NUTRITION**

- Nutrients and kidney function
- Nutritional and metabolic consequences of chronic renal failure
- Dietary management of chronic renal disease
- Sodium, diet and hypertension

**6. PATHOLOGY**

- Kidney
- Lower urinary tract

**7. PHARMACOLOGY**

- Autonomic pharmacology and the urogenital tract
- Drug pharmacokinetics and renal effectors
  - Nonsteroidal anti-inflammatory agents
  - Adrenocortical steroids – renal effects
  - Agents that affect calcium and phosphate homeostasis
  - Diuretics and renal function
- Cancer chemotherapy
- Penicillins and cephalosporins



Academic Year \_\_\_\_\_

- Aminoglycosides
- Tetracyclines, azithromycin and erythromycin
- Sulfonamides, trimethoprim and quinolones
- Urinary antiseptics
- Anti-schistosomal drugs
- Gout and purine metabolism
- Immunosuppressive agents

## **8. PHYSIOLOGY**

- Renal structural-functional relationships, glomerular filtration and renal blood flow.
- Solute and water transport along the nephron, including mechanisms of secretion and absorption
- Urine concentration and dilution
- Regulation of acid base balance

1

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 9: Endocrine
<b>Sponsoring department or unit:</b>	Department of Medical Education Department of Internal Medicine
<b>Name of course director:</b>	Stephen Sandroni, MD/Curt Pfarr, PhD/Amy Trott, PhD /Elmus Beale, PhD/Tamis Bright, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Medical Education	15
Internal Medicine	9
Family Medicine	2
Biomedical Sciences	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This six week unit of Scientific Principles of Medicine addresses glucose, lipids, intermediary metabolism of these entities, and diseases processes associated with their abnormalities in the context of the following clinical presentations:

1. Hypertension
2. Hypothalamus/Pituitary Axis
3. Disorders of thyroid function
4. Diabetes and obesity

The sequence of these clinical presentations has been structured so that the concepts developed during the study of one topic provide a foundation for the subsequent topic. As with the other courses in the SPM sequence, basic information is provided for each clinical presentation including a brief definition, a statement of its clinical significance, and a list of the potential causes for the presentation. "Process worksheets" and "worked case examples" are employed by the small groups as in previous SPM units.

Basic information is provided for each clinical presentation, including a brief definition and a statement of its clinical significance. A list of the potential causes for the presentation is addressed along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation provides the basis for discussion of basic science principles including underlying anatomic, biochemical, and patho-physiological concepts. Management concerns including appropriate

pharmacology are discussed. A list of basic science topics covered in this unit can be found in the attached Topic Appendix.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents*		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

\*On occasions a resident may accompany a faculty member to observe and participate in WCE sessions. The faculty member, however, is responsible for conducting the session and evaluating student participation.

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

Instruction in this course takes place at one site only, the campus of PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine: Endocrine Unit
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to be provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, could be referred to the Grading and Promotion committee for action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. The PLFSOM enjoys excellent educational facilities including state-of-the-art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

In general we have sufficient faculty for this unit, but did experience some challenges in finding enough tutors for the small group “Worked Case Example” sessions. It was necessary on a few occasions to combine into larger groups. (See challenges section below.)

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students completed an anonymous on-line evaluation at the end of this unit of the SPM course. We used a 5-point scale with 5 indicating a high level of agreement/satisfaction.

<b>Endocrine Unit Evaluation Results</b>	<b>2010-2011 Renal/ Endocrine</b>	<b>2011-2012 *Endocrine</b>
This unit was well organized.	3.5	3.5
The learning objectives were clearly identified.	3.9	4.1
The unit met the identified learning objectives.	3.9	4.1
The order of clinical presentations made sense to me.	3.5	3.1
The Basic Science material was well integrated.	3.5	3.9
The amount of material presented was reasonable.	3.7	4.1
I knew what I was supposed to be learning and why.	4.0	4.1
The methods used to evaluate my performance were fair.	3.9	4.0
The Clinical presentation "schemes" contributed to my learning.	3.9	4.1
The Process Worksheets contributed to my learning.	3.7	4.2
The lectures helped me learn the material.	4.1	4.1
The Worked Case Examples helped me learn the material.	3.9	4.1
The self-taught modules helped me learn the material.	NA	2.8
The Anatomy labs helped me learn the material.	2.7	NA
Overall, I've learned useful knowledge and/or skills.	4.3	4.2
N	24	58
Class size at date	37	58
Response Rate	65%	100%

Academic Year: 2011-12

\*Please note: In the 2011-12 Academic Year Endocrine was treated as a separate unit and evaluated separately.

*Identify major successes in the course and problems to be overcome.*

Successes:

- Students performed well in this unit and performed well on NBME Comprehensive Basic Science Exam on items linked to the endocrine system.
- Students are generally quite satisfied with this unit.

Challenges:

- Students expressed concern about the order of the clinical presentations. The faculty is considering re-sequencing of presentations to address diabetes and obesity earlier in the unit.
- Students expressed dissatisfaction with the “self-taught” approach to pharmacology. We are recruiting an additional pharmacologist to reduce teaching burden and will schedule more face-to-face contact time next year.
- We do not have enough Endocrinologists on faculty to serve as facilitators of small groups (n=10) with expanding class size. Next year we will expand our invitation to family physicians and general internists. Faculty in these specialties are well prepared to serve as tutors for second year medical students being introduced to common endocrine problems.

Topic Appendix: Renal/Endocrine Unit

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**1. ANATOMY / HISTOLOGY / EMBRYOLOGY**

***GROSS***

- Neuroendocrinology - hypothalamus/pituitary
- Thyroid and parathyroid
- Adrenal gland

***HISTOLOGY***

- Pancreatic islets
- Neuroendocrinology & hypothalamus/pituitary
- Thyroid and parathyroid glands
- Adrenal gland
- Amine precursor uptake and decarboxylase (APUD) cells

***EMBRYOLOGY***

- Pancreatic islets
- Neuroendocrinology - hypothalamus/pituitary
- Thyroid and Parathyroid
- Adrenal gland
- Amine precursor uptake and decarboxylase (APUD) cells
- Pineal gland

**2. BIOCHEMISTRY**

- Pancreatic islet hormones
  - Glucagon
  - Insulin
  - Somatostatin
  - Pancreatic polypeptide
- Hypothalamus and pituitary
- Thyroid gland and parathyroid
- Adrenal
  - Cortex
  - Adrenal medulla
  - Enterochromafin cells
- Regulation of fuel homeostasis

### **3. GENETICS**

- Genetic disorders of endocrine function

### **4. MICROBIOLOGY/IMMUNOLOGY**

- Immune modulators of pancreatic islets
- Thyroid and immune function

### **5. NUTRITION**

- Diabetes, insulin deficiency and fuel homeostasis
- Fuel metabolism review and overview
- Hormones and nutrient metabolism
- Biological determinants of appetite regulation
- Glucose management and diabetes

### **6. PATHOLOGY**

- Pancreatic islets
- Neuroendocrinology - hypothalamus/pituitary
- Thyroid and parathyroid
- Adrenal
  - Cortex
  - Medulla

### **7. PHARMACOLOGY**

- Pancreatic islet hormones
- Neuroendocrinology and the hypothalamus/pituitary
- Thyroid replacement therapy
- Parathyroid dysfunction and calcium – phosphorus balance
- Adrenal
  - Dysfunction and therapeutics
  - Adrenal cortex and pharmacologic adjuncts
- Growth and development deficits and growth hormone
- Energy production and metabolism as affected by therapeutics

### **8. PHYSIOLOGY**

- Pancreatic islets and modulation of alpha, beta, and delta cells
- Neuroendocrinology - hypothalamus/pituitary
- Thyroid function – iodine, thyroglobulin, T3, T4, rT3, TBG



Academic Year: 2011-12

- Parathyroid modulation of bone homeostasis
- Adrenal modulation of corticosteroids and glucocorticoids
- Growth and development deficits and the role of growth hormone
- Energy production and metabolism in health and disease
- Adaptation to hostile environments
- Composition and volume of extracellular fluid

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 10: Reproduction
<b>Sponsoring department or unit:</b>	Department of Obstetrics and Gynecology Department of Medical Education
<b>Name of course director:</b>	Sanja Kupesic, MD/ Dale Quest, PhD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Department of Medical Education	15
Department of Obstetrics and Gynecology	6
Department of Family and Community Medicine	1
Department of Pathology	1

**COURSE OBJECTIVES**

*Are there written objectives for the course?*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This unit of Scientific Principles of Medicine addresses human reproduction, pregnancy, and illnesses associated with the reproductive system and process. This course of instruction is organized around the following clinical presentations:

1. Infertility
2. Male reproductive system
3. Abnormal menstrual cycle
4. Contraception
5. Menopause
6. Pelvic floor relaxation
7. Screening and prevention
8. Sexually transmitted diseases
9. Abnormal genital track bleeding
10. Pelvic mass
11. Pelvic pain
12. Normal pregnancy
13. Pregnancy complications
14. Pregnancy loss

The sequence of these clinical presentations has been structured so that the concepts developed during the study of one topic lay down a foundation for subsequent topics. Students are provided with a brief

definition and a statement of clinical significance for each clinical presentation. This serves as the foundation for presentations of both clinical and basic science information. Gross, microscopic, and radiographic normal and abnormal anatomy are presented in laboratory and small group discussions (with “process worksheets” and “worked examples” as previously described).

Physical signs and symptoms associated with particular disease processes are provided along with a schematic representation of the relationships of causal entities. This list of causes and the associated schematic representation provide the basis for discussion of basic science principles including underlying anatomic, biochemical, and pathophysiological concepts. Basic science learning objectives are covered for each clinical presentation. Examples of the basic science content of this unit of SPM are listed in the topic appendix at the end of this course description.

**Preparation for Teaching**

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets”) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This course is taught at only a single site, the campus of the PLFSOM.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Scientific Principles of Medicine Unit 10: Reproduction
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

Not applicable.

<b>Year:</b>			
<b>Score:</b>			

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions		Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions		Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers		Presentations
<input type="checkbox"/>	Oral exams		Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 25-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on the number of items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group facilitators complete assessments on student performance in WCE sessions. These include space for narrative comments. Rating forms are uploaded into the student e-portfolio and are reviewed by the associate dean for student affairs, senior associate dean for medical education, and college masters who collaborate in formulating a summary narrative at the end of the year.

## COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. The PLFSOM enjoys excellent educational facilities including state-of-the-art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment. Centralized IT and Audiovisual support is also made available to all courses and units of instruction within SPM.

In general we have sufficient faculty for this unit. There is a high level of support in the Department of Obstetrics and Gynecology for this unit and many participated in WCE small group sessions.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete anonymous on-line evaluations at the end of each unit. Results below are based on a 5-point scale with 1 representing "Strongly disagree" and 5 indicating "Strongly Agree."

<b>Reproduction Unit Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.8	4.3
The learning objectives were clearly identified.	4.1	4.3
The unit met the identified learning objectives.	4.0	4.4
The order of clinical presentations made sense to me.	4.1	4.1
The Basic Science material was well integrated.	2.9	4.2
The amount of material presented was reasonable.	4.2	4.0
I knew what I was supposed to be learning and why.	3.8	4.1
The methods used to evaluate my performance were fair.	4.1	4.0
The Clinical presentation "schemes" contributed to my learning.	4.3	4.3
The process work sheets contributed to my learning.	4.3	4.1
The lectures helped me learn the material.	3.8	4.2
The Work Case Examples helped me learn the material.	4.1	4.4
The self-taught sessions helped me learn the material	NA	3.7
Anatomy Labs helped me learn the material.	2.8	3.5
Female Infertility Integrative Lab helped me learn the material.	3.5	NA
Overall, I learned useful knowledge and/or skills during this unit.	4.4	4.5
N	32	55
Class size at date	37	57
Response Rate	86%	96%

*Identify major successes in the course and problems to be overcome.*

Successes:

- Students have highly valued the organization of the Unit and integration of basic and clinical science content.
- In 2011/12 male reproductive system was successfully incorporated in Reproduction Unit.
- Students' evaluations indicate that integration of scheme presentations with worked case examples and Medical Skills has facilitated mastering Reproduction Unit learning objectives.

Challenges:

- Improvements are to be made to self-taught sessions and Anatomy Lab activities to better fit the clinical science learning objectives.
- Improve the consistency of small group sessions. The clinician unit director will meet with the other small group facilitators to review goals, objectives and approach and give them an opportunity to ask questions and seek clarification.

## Topic Appendix: Reproduction Unit

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### 1. ANATOMY / HISTOLOGY / EMBRYOLOGY

#### Gross Anatomy

- Structure of the pelvis, bones and joints
- The inguinal region: structure, nerve supply
- Blood supply of the spermatic cord, and scrotum
- Nerve supply and blood supply of the male internal genitalia
- Urogenital region
  - Urogenital triangle
  - Urogenital diaphragm
  - Superior and inferior fasciae
  - Superficial and deep perineal pouches
  - Pudendal nerve and internal pudendal artery, pudendal canal
  - Superior pubic ligament and the arcuate pubic ligament
  - Lymphatic drainage and the structures of the male pelvis
- Visual learning objectives for gross anatomy
- Ovary and the female reproductive system
- Pelvis, bones and joints of the pelvis, the walls and floor of the pelvis
- Pelvic diaphragm and the levator ani
- Nerves of the pelvis including the pudendal nerve the pudendal canal
- Arteries of the pelvis, vaginal arteries
- Pelvic autonomic nerves
- Urogenital region
  - Urogenital triangle
  - Urogenital diaphragm
  - Associated musculature
  - Superior and inferior fasciae of diaphragm
  - Superficial and deep perineal spaces
  - Female internal genital organs
- Structure, blood supply, and nerve supply of the vagina, uterus, uterine tubes, and ovaries
- Vaginal anatomy
  - Relationship of the vagina to the perineal body
  - Sphincters of the vagina



- Vaginal artery
- Uterus and ovaries
  - Uterine artery and internal pudendal artery
  - Anastomosis between ovarian branch of uterine artery and the ovarian artery
  - Broad ligaments, round ligaments
  - Suspensory ligament of the ovary, and the uterosacral ligament
  - Pelvic fascia, peritoneum, bladder, uterus, and rectum
- Retropubic space and female perineum
- External genitalia
  - Blood supply and nerve supply of the mons pubis
  - Labia majora and minora
  - Vestibule of the vagina
  - External urethral orifice and Bartholin's gland
  - Lesser vestibular glands
  - Clitoris and the bulbs of the vestibule
- Lymphatic drainage of the structures of the female pelvis
- Anatomy and lymphatic drainage of the breast
- Visual learning objectives for gross anatomy

### **Histology**

- Ovary and female reproductive system
  - Histogenesis and histological organization of the ovary
  - Oogenesis and comparisons with spermatogenesis
  - Organization, function and development of the ovarian follicle
  - Histophysiology of the ovarian follicle
  - Cells producing steroid hormones and sources of steroid precursors
- Target cells of pituitary gonadotropins
  - Trophic action of gonadotropins
  - Apoptosis upon diminished gonadotropin secretion
- Generic structure of visceral canals, layers of the oviduct and vagina
- Histological organization of the uterus
- Implantation, formation, development and structure of the human placenta
- Mammary gland during and after lactation
- Hormones and the gonadostatic function of the pineal gland.

## **Embryology**

- Ovary and female reproductive system
  - Development of the gonads
  - Absence of the Y-chromosome gene on female reproductive system
  - Derivation of the primordial follicles
  - Müllerian ducts
    - Development of the female reproductive system
    - Uterovaginal primordium
  - Uterine and associated tissue
    - Fallopian tubes
    - Uterus
    - Superior portion of the vagina
  - Formation of the broad ligaments, rectouterine pouch, and vesicouterine pouch
  - Inferior two-thirds portion of the vagina
  - Development of the auxiliary genital glands and external genitalia
- Female reproductive cycle with emphasis on the ovarian cycle
  - Gametogenesis and oogenesis
  - Origin of the corpus luteum from the remaining granulosa and thecal cells
  - Origin of the placenta, beginning at implantation, developing through parturition
  - Parturition, stages of labor, and hormonal control

## **2. BIOCHEMISTRY**

- Estrogens, progesterone and the female reproductive system
  - Synthesis and secretion pathways for the synthesis of estradiol and progesterone and their tissue location
  - Transport and metabolism of the steroid hormone carrier proteins and their sites of synthesis
  - Signal transduction, mechanism by which estrogens and progesterone exert their effects on tissues
  - Menstrual cycle and pregnancy hormonal changes that take place during pregnancy and the function of the various hormones
  - Parturition and lactation, hormonal changes that occur during and after parturition, and the function of the individual hormones, hormones that participate in lactation, and their individual roles

## **3. GENETICS**

- Genetics of gender

- Genetic disorders of endocrine function

#### **4. NUTRITION**

- Special nutritional needs during pregnancy, parturition, and lactation
  - Potentially deleterious nutritional deficiencies
    - Methods of and rationale for the nutritional assessment of the pregnant woman
    - Recommended dietary allowances for pregnancy and lactation
    - Vitamins and minerals important prevention of anemia during pregnancy and their functional biochemistry
    - Nutritionals important for prevention of birth defects
  - Potentially deleterious nutritionals, teratogens and toxicants
    - Nutritional supplements, caffeine, alcohol, drugs and exercise in pregnancy
    - Risk factors for abnormal fetal birth weight
    - Fetal alcohol syndrome and other developmental abnormalities

#### **5. PATHOLOGY**

- Female genital system and breast
  - Female genital tract
    - Clinical, gross and microscopic features of the neoplasms
    - Relationship of in utero exposure to diethylstilbestrol in vaginal adenosis and adenocarcinoma
    - Role of human papillomavirus (HPV) in carcinoma of the cervix
    - Cervix and cervical dysplasia, squamous carcinoma - in-situ, invasive squamous carcinoma and adenocarcinoma
  - Histologic appearance of the endometrium
    - Anovulatory cycles
    - Prolonged oral contraceptive use
    - Ingestion of progestational agents
    - Endometrial hyperplasia
    - Endometrial adenocarcinoma
  - Gross and microscopic features
    - Leiomyoma
    - Leiomyosarcoma
    - Adenomyosis
    - Endometriosis

- Endometrial hyperplasia
- Etiologies and potential complications of pelvic inflammatory disease
- Ectopic pregnancy
- Major features of polycystic ovary syndrome
- Chronic endometriosis
- Ovarian neoplasms
- Placenta and pathology of placentation
- Gestational trophoblastic disease
- The breast
  - Clinical findings and dominant histological features of acute mastitis and breast abscess, plasma cell mastitis (duct ectasia), fat necrosis of the breast
  - Fibrocystic disease of the breast
  - Breast neoplasms: patterns of presentation, gross and microscopic features, patterns of metastasis (if any), and prognosis
  - Staging and prognostic factors (molecular, microscopic, clinical) that influence the clinical outcome of breast cancer
  - Significant abnormalities of the male breast, gynecomastia and carcinoma

## **6. PHARMACOLOGY**

- Ovary and female reproductive system
  - Natural and synthetic estrogens
    - Selective estrogen receptor modifiers
    - Antiestrogens
    - Estrogen synthesis inhibitors
  - Natural and synthetic progestins
    - Anti-progestins
    - Combination oral contraceptives
  - Therapeutic uses of estrogens and progestins
    - Hypogonadism
    - Postmenopause
    - Contraception
    - Osteoporosis
    - Cancer
- Ovulation induction
  - GnRH agonists and antagonists

- Gonadotropins
- Osteoporosis: prevention and treatment
- Agents that cause contraction and relaxation of the uterus
- Prostaglandins in obstetrics

## **7. PHYSIOLOGY**

- Ovary and female reproductive system
  - Secretion and chemical nature of female sex steroid hormones
  - Function of the hypothalamic-pituitary-gonadal axis and “feedback” in males
  - Regulation of synthesis and secretion
    - LH, FSH, prolactin
    - Female sex steroid hormones
    - Gonadotropin releasing hormone
- Endocrine influences on the function of the female reproductive system
  - Uterine endometrium and the menstrual cycle
    - Changes in the ovaries
    - FSH and LH
    - Estrogens and progesterone
    - Normal ovulatory menstrual cycles
    - Anovulatory menstrual cycle
    - Consequence of androgen production in the female
  - Pregnancy
    - Estrogen and progesterone
    - Human chorionic gonadotropin
    - Human placental lactogen
  - Endocrine functions of the placenta
  - Factors responsible for initiation and control of parturition
  - Hormones in breast development, milk synthesis, and milk release
  - Functions of the primary and accessory reproductive structures in the female
  - Physiological changes which occur during pregnancy for both the mother and the fetus

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Scientific Principles of Medicine Unit 11: The Mind and Human Development
<b>Sponsoring department or unit:</b>	Departments of Medical Education, Pediatrics and Psychiatry
<b>Name of course director:</b>	Tania Arana, PhD, Richard Brower, MD, Blanca Garcia, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	15
Department of Pediatrics	12
Department of Psychiatry	7
Department of Family and Community Medicine	2
Department of Internal Medicine	1
Department of Biomedical Science	1

**COURSE OBJECTIVES**

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

The Mind and Human development unit of SPM addresses normal and abnormal bio-behavioral developmental process across the life span beginning at birth through old age and senescence. This unit builds on the foundation laid by the unit on human reproduction which precedes it. The following clinical presentations have been assigned to Unit 11:

1. Developmental Health and Disease: Infant –Toddler (ages 0-2)
2. Sudden Infant Death Syndrome and Acute Life Threatening Events (Self-Taught Module)
3. Development Health and Disease in Early Childhood (ages 2-8)
4. Developmental Health and Disease in the Pre-Teen Years (ages 8-12)
5. Developmental Health and Disease in Adolescent Patients (ages 13+)
6. Oral Health (Self-Taught module)
7. Mood Disorders
8. Anxiety and Panic Disorders
9. Psychosis-Disordered Thought
10. Falls in the Elderly (Self-Taught Module)
11. Substance Abuse, Dependence, and Withdrawal
12. Dementia
13. Sleep and Circadian Rhythm Disorders

Academic Year \_\_\_\_\_

As with all of the units that fall under the Scientific Principles of Medicine (SPM) course umbrella, the sequence of clinical presentations have been structured so that concepts developed during the study of one topic provides a foundation for subsequent topics. The basic science content and concepts addressed in this unit are those that the faculty deems are essential for understanding a given presentation. Example basic science topics addressed in this unit of SPM are included in the appendix at the end of this course description. This content is provided to students through lecture, laboratory sessions, problem solving small group interactions, and self-study modules.

***Preparation for Teaching***

A majority of the instruction in this unit is delivered by faculty members in the department of medical education who participated in the development and planning of the unit. Consequently, they are well aware of the goals and objectives of the unit and how their individual material relates to that presented by other faculty members. Faculty members from the clinical departments who participate in the unit as clinical presentation “scheme presenters” and as facilitators in “Worked Case Example” (WCE) small group sessions are briefed by the unit director(s) regarding the goals and objectives of the session(s) in which they will participate. The unit directors review and give scheme presenters feedback on their particular presentations. WCE facilitators are provided with session materials (power points case material, “process work sheets) and are briefed on the goals and objectives of the given session. Whenever possible, new small group facilitators observe more experienced facilitators to learn about the WCE process.

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	<b>Yes</b>	<b>No</b>
Residents		✓
Graduate Students		✓
Postdoctoral Fellows		✓

***If yes, describe how they are informed about the course objectives and prepared for their teaching role.***

Not applicable

***If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.***

This course is taught at only one site—the campus of the PLFSOM.

Academic Year \_\_\_\_\_

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Mind and Human Development
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group assessment

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Students participate in a 20-30 item formative assessment each week of this unit covering material presented in the preceding week. Typically these items are multiple choice questions written in the USMLE vignette format and they are drawn from the item pool that is being developed for each of the Scientific Principles of Medicine units. The formative assessment is delivered electronically in a secure environment and students receive immediate feedback on how many items they answered correctly. They also are able to review each of the items with annotations prepared by the item author explaining the correct (keyed) response. Scores are loaded into the students' e-portfolios for information purposes only. Scores on the formative quizzes are not used for final unit grading purposes. The goal of the formative assessment is to give students a sense of how they are performing and to identify early areas in which they may need to devote additional time or seek additional help from faculty.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance and participation in the Worked Case Examples sessions. Faculty tutors are encouraged to provide brief narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to provide



Academic Year \_\_\_\_\_

formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persisted, despite feedback, could be referred to the Grading and Promotion committee for action.

### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

This course, like all of the others in the SPM curriculum is delivered by an interdisciplinary cadre of basic science and clinical faculty. While most of these faculty members are affiliated with the department of medical education, several members of the clinical faculty play an active role as CP lecture presenters and small group tutors or facilitators. Faculty resources are more than adequate to meet the needs of this course. The PLFSOM enjoys excellent educational facilities including state-of-the art lecture halls, laboratories, flexible-use teaching space (e.g., for interactive and Team-Based Learning activities), small group rooms, etc. All units within SPM are supported by full time course coordinators and an assessment coordinator for formative and summative assessment.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

At the end of the unit students complete anonymous on-line course evaluations employing a 5 point scale with a 1 representing dissatisfaction/disagreement with an item and a 5 representing a high level of satisfaction/agreement.

<b>Mind &amp; Human Development Evaluation Results</b>	<b>2010-2011</b>	<b>2011-2012</b>
This unit was well organized.	3.2	2.9
The learning objectives were clearly identified.	3.2	3.3
The unit met the identified learning objectives.	3.4	3.2
The order of clinical presentations made sense to me.	3.6	3.3
The Basic Science material was well integrated.	3.4	3.3
The amount of material presented was reasonable.	3.1	3.7
I knew what I was supposed to be learning and why.	3.4	2.9
The methods used to evaluate my performance were fair.	3.0	3.2
The Clinical presentation "schemes" contributed to my learning.	3.6	3.3
The process work sheets contributed to my learning.	3.4	3.2
The lectures helped me learn the material.	3.5	3.0
The Work Case Examples helped me learn the material.	3.5	3.9
The self-taught modules helped me learn the material	NA	3.1
Anatomy Labs helped me learn the material.	3.0	NA
Overall, I've learned useful knowledge and/or skills during this unit.	3.7	3.5
N	12	55
Class size at date	37	57
Response Rate	32%	96%

Academic Year \_\_\_\_\_

*Identify major successes in the course and problems to be overcome.*

*Successes:*

- This unit of SPM was modified following the AY 2010-11 to place more emphasis on developmental themes. This enabled us to reduce redundancy that students did not find particularly helpful despite the intended goal of review in a pediatric context.

*Challenges:*

- Students perceived this unit as being somewhat disorganized. We agree. Some of this disorganization can be attributed to the substantial changes required to highlight development as the organizing theme of the unit.
- The self-taught modules on Sudden Infant Death and Acute Life Threatening Events, Oral Health, and Falls in the Elderly were not particularly well received by students and may have contributed to the perception that they were not well integrated with other components of the unit.
- The Psychosis-Disordered Thought and Substance-Abuse clinical presentations need improvement.

*Improvement Plan:*

- To improve how the organization and flow of the unit are perceived the Unit co-directors plan to unify the efforts of the clinical medical educators/scheme presenters. They will be asked to coordinate their efforts to create threads that stream through the human development presentations such that each presenter identifies the unique features of the physical , sexual , emotional and cognitive development for each stage.
- Unit directors have identified the need to improve exam items. In particular each item must be unique and not identifiable from available learning resources. All items will be reviewed by the authors and vetting teams for uniqueness as the unit progresses this year.
- Certain psychiatry topics had not received the appropriate attention and will emphasis will be increased. In particular, efforts will be made to include the topics of Personality Disorders and Defense Mechanisms.
- The Department of Medical Education will be adding an experienced clinician medical educator in July 2012. He will play a major role in the planning and implementation of this unit in the future.

## **Appendix: Topic List for Mind and Human Development**

### **1. BEHAVIORAL SCIENCE**

- Characterization and assessment of human behavior
  - Development
  - Psychological assessment
  - Personality
  - Learning and memory
  - Psychosocial determinants of behavioral and cognitive health
- Established disorders of human behavior
  - Structure and use of the DSM-IV-TR
  - Autism spectrum disorders
  - Stress and coping mechanisms
  - Personality disorders
  - Anxiety disorders
  - Mood (affective) disorders
  - Attention disorders and disruptive behavior in children
  - Disorders of thought and psychotic disorders, including schizophrenia
  - Dementia and delirium
  - Circadian rhythms and sleep, normal and abnormal states/conditions
- Relationship of organic illness or physiologic changes on human behavior
  - Pregnancy
  - Cardiovascular risk
  - Pain and coping mechanisms
  - HIV and the individual
- Interpersonal relationships and human behavior
  - Families, relationships, and health
  - Violence and suicide
  - Sexuality & sexual dysfunction
- Human behavior and pharmacologically active agents
  - Adherence to medical regimens
  - Substance abuse, addiction and withdrawal
  - Consequences of maternal/prenatal substance abuse

### **2. BIOCHEMISTRY**

- Metabolism of the brain and central nervous system in health and disease
  - Glucose and carbohydrates
  - Nitrogen, ammonia and the urea cycle
  - Amino acid categorization, metabolism and metabolic disorders
  - Fatty acid metabolism
  - Lipolysis, beta-oxidation, gluconeogenesis and ketogenesis
  - The TCA cycle and the respiratory/electron-transport chain
  - Organic acids and organic acidurias
  - Lipids and myelin
  - Serotonin and neuroactive transmitters
  - Thiamine and thiamine deficiency
- Biochemical mechanisms in degenerative diseases
  - Alzheimer disease
  - Amyloidosis
  - Prion diseases

### **3. GENETICS**

- Genetic aspects of newborn screening
- Genetic aspects of behavioral and cognitive disorders

### **4. NUTRITION**

- Nutrition, malnutrition and development
- Psychosocial and behavioral aspects of nutrition
- Eating disorders
- Nutritional rehabilitation

### **5. PHARMACOLOGY** (uses, mechanisms of action, pharmacokinetics, and adverse effects)

- Pharmacology and human development
  - Developmental aspects of pharmacokinetics
  - Steroids and sexual development
- Pharmacology and behavior, mental health and cognition
  - Stimulant drugs
  - Cholinergic drugs
  - Anticholinergic drugs
  - Indirect-acting sympathomimetic agents
  - Indirect-acting sympatholytic agents
  - Serotonergic drugs
  - Dopamine antagonists
  - Antipsychotic agents
  - Sedatives, hypnotics and anxiolytics
  - Drugs used to treat ADHD
  - Drugs used to treat affective disorders
  - Drugs of abuse
  - Pharmacology of tobacco dependence
  - Drugs used in dementias
  - Antiepileptic drugs as mood stabilizers
  - Prescribing CNS drugs for the elderly

### **6. PHYSIOLOGY**

- Physiology of human development
  - Lung maturation and surfactant
  - Circulatory system maturation
  - Maturation of liver function
  - Control of sexual development
  - Control of linear growth and body mass
- Physiology and neuroscience of behavior, mental health and cognition
  - Physiology of circadian rhythms and sleep
  - Physiology of stress
  - Physiology of substance abuse\
  - The limbic system
  - Neuroscience of mood disorders
  - Neuroscience of psychosis and schizophrenia
  - Neuroscience of dementia

### **7. ANATOMY/NEUROANATOMY**

- Development of the nervous system (review and elaboration)
- Anatomy of the limbic system and Papez circuit

Academic Year \_\_\_\_\_

## **8. MICROBIOLOGY**

- Developmental aspects of infectious disease
- Infectious diseases of the premature and newborn infant
- TORCH infections

## **9. IMMUNOLOGY**

- Prematurity and the immune system
- Development of the immune system
- Primary and secondary immune deficiencies
- Childhood allergies
- Aging and the immune system

## Academic Year 2011-12

Please note: Medical Skills (I, II, II and IV); Society, Community and the Individual (I, II, II, IV), and the Masters Colloquium (I, II, II, and IV) are courses that span the entire first two years of the curriculum. They are organized as continua as illustrated in Section II ED-5 and as described in the “overview” to the curriculum introducing the Educational Program component of the database. To reduce redundancy, we prepared a single description for these three years 1 and 2 courses. These descriptions are contained in the folder labeled “M1 and 2 Continua Courses.”

<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Society, Community, and the Individual I, II, III, IV
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	Theresa Byrd, Dr. PH/Tania Arana, PhD

Society, Community, and the Individual (SCI) is a two-year long course spanning the first four semesters of medical school.

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	3
Department of Biomedical Science	1
Department of Family Medicine	43*
Department of Internal Medicine	11*
Department of Pediatrics	9*
Department of Obstetrics and Gynecology	2*
Department of Psychiatry	3*

\*Please note: These numbers include volunteer community faculty members serving as preceptors in the community-clinic experience component of SCI.

### COURSE OBJECTIVES

*Are there written objectives for the course? (check)*

Yes	✓	No	
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*Briefly summarize the objectives/content areas covered in the course.*

Society, Community, and the Individual (SCI) is a required course spanning the MS1 and MS 2 years. The overall goal of this course is to provide students with a population perspective on health, illness, and care. This perspective is conveyed by weaving the following threads throughout the course: epidemiology, biostatistics, culture, community, family, environmental and occupational health, and medical Spanish. As part of this course, students participate in community assessment projects and they are assigned to community clinics where they spend approximately one-half day per month during the school year. During their clinic placements they are given opportunities to interact with patients under the supervision of physicians who have clinical appointments in the School of Medicine and they also complete a series of exercises designed to help them understand the organization of the practice, and the roles and relationships among the various members of the health care team (e.g., nurses, medical assistance, pharmacy, social work, community outreach workers).

Academic Year \_\_\_\_\_

The overall course goals include the following (alpha-numeric code refers to Institutional Learning Objectives described in Section II, ED-1, 1-A):

1. Students will understand the ecological model of health and how political/social, community, organizational, and family systems influence individual health (PBL-2, SBP-1, SBP-2, Prof-9);
2. Students will acquire an understanding of biostatistical concepts required to critically evaluate the medical literature and practice evidence-based medicine (MK-3, MK-4);
3. Students will understand modern epidemiological principles for assessing disease processes within populations and know how to apply this knowledge in practice (MK-3, MK-4);
4. Students will appreciate the role of culturally based beliefs, attitudes, and values in affecting the health and illness behaviors of individuals, groups, and communities (ICS-1, ICS-2, ICS-3, Prof-5, Prof-7);
5. Students will understand the concept of community and of systems within communities that impact health seeking behaviors and responses to treatment interventions (SPB-1, SPB-2);
6. Students will recognize variations in family structures, organization, values, and expectations as these influence health and illness-related behaviors (ICS-1, ICS-2, ICS-3, Prof-5, Prof-7);
7. Students will recognize the impact of environmental and occupation factors on the health of individuals and populations within communities and they will be able to identify and apply effective strategies for promoting health and reducing illness at the level of the individual and the community (ICS-3, SBP-1, SPB-2).
8. Students will acquire (or expand upon existing) skills in conversational and medical Spanish (ICS-1, ICS-3).

Specific learning objectives and expectations are made available prior to, or at the time of, each individual learning activity.

### **Preparation for Teaching**

A majority of the lecture sessions in this course have been developed and delivered by faculty members who participated in the initial planning and design of the course. Consequently they are well aware of course goals and objectives and have developed their teaching materials to meet these goals and objectives. For small group sessions, facilitators are provided with detailed small group facilitator guides, lesson plans, and all needed materials. Further, faculty members facilitating small group sessions meet in “faculty huddles” prior to the scheduled session to review the goals, objectives, and methods of the session and to ask and answer questions. Community-based preceptors are provided opportunities for in-person orientation and faculty development. All are provided with detailed session guides and outlines.



Academic Year \_\_\_\_\_

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	Yes	No
Residents		X
Graduate Students		X
Postdoctoral Fellows		X

*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

Residents, Fellows, and Graduate Students do not teach in this course.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

Didactic/classroom components of this course are taught at a single location on the campus of the school of medicine. Students are, however, assigned to one of several community clinic sites for early clinical experiences located throughout the area. A variety of methods are employed to orient staff and clinical faculty to the goals and learning objectives of the course and the evaluation of the student. These include the following:

1. The creation of a community clinic advisory group with a representative from each major community-based site. This group meets two-three times a year, and as needed, to discuss the program goals and objectives, logistics, and to solve problems. These dinner meetings are well attended.
2. The course directors and coordinators hold orientation meetings with the clinical faculty and staff at each of the community clinic sites at the beginning of each academic year.
3. Each participating community clinic faculty member is provided a copy of the course syllabus and with a set of written materials outlining course objectives and learning activities.
4. Community clinic faculty do not grade the student per se, but complete a behavioral feedback form, including narrative comments, that is used by the course director to determine whether there are problems with student attitudes or conduct that need to be addressed.

Academic Year \_\_\_\_\_

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Society, Community, and the Individual
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input checked="" type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input checked="" type="checkbox"/>	Fill-in, short answer questions	<input checked="" type="checkbox"/>	Problem-solving written exercises
<input checked="" type="checkbox"/>	Essay questions or papers	<input checked="" type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input checked="" type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input checked="" type="checkbox"/>	Other (describe) Small group facilitator evaluations

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

Practice exam questions are provided for biostatistics.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Small group tutors complete a brief evaluation of student performance in SCI small group sessions and they are encouraged to provide brief narrative comments. Similarly, community preceptors complete an assessment on each student at the time of each encounter. They too are encouraged to provide narrative comments. These narrative comments are reviewed by the senior associate dean for medical education, the associate dean for student affairs and the college masters at the end of the year and a summary narrative is constructed and provided to the student in their e-portfolios. The summary narratives are intended to provide formative feedback. However, problems with professionalism (e.g., disruptive or disrespectful behavior) that persist, despite feedback, would be referred to the associate dean for student affairs and if necessary to the Grading and Promotion committee for action.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

Academic Year \_\_\_\_\_

The SCI course has excellent space, excellent IT/Educational technology support, and a full time course coordinator to assist the course director. We also have more than adequate faculty resources to meet the didactic course goals and learning objectives. Our challenge for the future will be in recruiting sufficient numbers of community clinic physicians for the experiential components of this course. We have adequate numbers now to meet our needs for the next 2 years, but as our class size grows, we'll need to expand capacity. Steps are being taken to identify additional clinical faculty in the community and additional sites to meet future needs.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students are asked to complete anonymous on-line evaluations of this course at the end of the three-week, “mini-immersion” experience on language, culture, and community on the border, which serves as the PLFSOM introduction to the education program for first year students, and then again at the end of each semester. Students are asked to respond to evaluation items using a 5-point scale with 1 indicating “strong disagreement” with the item and 5 indicating “strong agreement.” Results for the last two years are presented below.

<b>SCI Immersion Block</b>	<b>Class of 2014</b>	<b>Class of 2015</b>
The SCI Immersion was well organized	4.0	3.4
The learning objectives were clearly identified	4.0	3.5
The SCI Immersion met the identified learning objectives	4.0	3.6
The community assessment gave me a good feel for the El Paso community.	4.4	4.1
The amount of material presented was reasonable.	4.2	3.6
I improved my Spanish speaking skills	4.2	4.0
The lectures helped me learn the material.	3.8	3.5
The small group learning activities helped me learn the material.	4.1	3.7
The community assessment helped me learn the material	4.0	3.7
The interactive sessions helped me learn the material	4.2	3.7
I understand how the SCI Immersion is applicable to the practice of medicine.	4.1	4.0
Overall, I learned useful knowledge and/or skills	4.0	3.7
N completing Survey	60	82
Class size	62	84
Response rate	97%	98%

Academic Year \_\_\_\_\_

<b>SCI I (Semester)</b>	2014	2015
SCI was well organized.	3.7	3.0
The learning objectives were clearly identified.	3.8	3.5
The course met the identified learning objectives.	3.9	3.5
The amount of material presented was reasonable.	3.9	3.8
I knew what I was supposed to be learning and why.	3.9	3.0
The methods used to evaluate my performance were fair	3.9	3.2
SCI broadens my perspectives.	3.5	3.0
The material covered by SCI is relevant to the practice of medicine.	4.0	3.3
The lectures helped me learn the material.	3.2	2.8
The community clinic experience is a worthwhile component of the curriculum.	4.2	3.9
Spanish is a worthwhile component of the curriculum.	3.7	3.3
Overall, I learned useful knowledge and/or skills during SCI.	3.7	3.2
Number of Responses	51	79
Class Size	60	83
Response Rate	85%	95%

<b>SCI II</b>	2014	2015
SCI was well organized.	3.5	3.0
The learning objectives were clearly identified.	3.5	3.2
The course met the identified learning objectives.	3.7	3.1
The amount of material presented was reasonable.	3.9	3.4
I knew what I was supposed to be learning and why.	3.6	3.1
The methods used to evaluate my performance were fair	3.7	3.0
SCI broadens my perspectives.	3.6	3.0
The material covered by SCI is relevant to the practice of medicine.	3.7	3.3
The lectures helped me learn the material.	3.3	3.1
The community clinic experience is a worthwhile component of the curriculum.	3.9	3.6
Spanish is a worthwhile component of the curriculum.	3.6	3.4
My community preceptor understood the learning objectives.	--	3.5
My community preceptor ensured that the learning objectives were met.	--	3.5
Overall, I learned useful knowledge and/or skills during SCI.	3.7	3.2
Number of Responses	43	79
Class Size	57	83
Response Rate	75%	95%

<b>SCI III</b>	2013	2014
SCI was well organized.	2.5	2.9
The learning objectives were clearly identified.	2.9	2.9
The course met the identified learning objectives.	2.7	2.9
The amount of material presented was reasonable.	2.5	3.3
I knew what I was supposed to be learning and why.	2.6	2.9
The methods used to evaluate my performance were fair.	2.4	2.9
SCI broadens my perspectives.	2.8	3.1
The material covered by SCI is relevant to the practice of medicine.	3.3	3.1
The lectures helped me learn the material.	2.2	2.6
The community clinic experience is a worthwhile component of the curriculum.	4.2	3.5
Spanish is a worthwhile component of the curriculum.	3.4	3.5
Overall, I learned useful knowledge and/or skills during SCI.	3.3	3.0
Number of Responses	27	57
Class Size	37	57
Response Rate	73%	100%

<b>SCI IV</b>	2013	2014
SCI was well organized.	2.4	2.4
The learning objectives were clearly identified.	2.4	2.5
The course met the identified learning objectives.	2.2	2.6
The amount of material presented was reasonable.	2.3	3.2
I knew what I was supposed to be learning and why.	1.8	2.2
The methods used to evaluate my performance were fair	1.8	2.4
SCI broadens my perspectives.	2.7	3.0
The material covered by SCI is relevant to the practice of medicine.	2.8	3.2
The lectures helped me learn the material.	1.6	2.2
The community clinic experience is a worthwhile component of the curriculum.	4.1	3.5
Spanish is a worthwhile component of the curriculum.	3.7	3.5
Overall, I learned useful knowledge and/or skills during SCI.	3.2	3.0
Number of Responses	19	55
Class Size	37	58
Response Rate	51%	95%

Academic Year \_\_\_\_\_

*Identify major successes in the course and problems to be overcome.*

Successes:

The SCI course has provided students with the opportunity to learn more about the ecological model of health and to connect the social, cultural, community and family determinants to individual health. Anecdotally, several third year students have commented that the content they learned in SCI has been helpful in the clinical setting. They especially feel they are skilled at patient-centered interviewing, and that they can better communicate with Spanish Speaking patients. We have also had some success in integrating more with the clinical and basic sciences content, by scheduling SCI content to coincide with other courses such as Scientific Principles of Medicine, Medical Skills and Master's colloquium topics as much as possible. In the Spanish course, students study the vocabulary associated with the SPM unit they are working in. Students have been very happy with the community clinic experience in general.

Challenges:

There have been several challenges that we have been working to overcome. The course has received low evaluations, in part because the content has been provided in a sporadic manner, and because students have not always seen the connection of SCI to medical practice. Generally, students tell us that they think the content is important for future interactions with patients, but they sense that it is not content that is covered on the USMLE Step 1 exam, so they feel uncomfortable about having to learn it in the first 2 years of medical school. In order to better understand the issues, and to get input from students and faculty from the other courses, we held an SCI planning summit in January 2012. We received good feedback on how to improve the course. In response to the feedback, we have changed the course for Fall of 2012 so that Spanish meets weekly for one hour (instead of once every 2 weeks) and SCI class meets weekly for one hour. We are changing our Spanish faculty from a health science based faculty to a language and arts based faculty to improve language instruction. Spanish will be assessing students OSCEs with Spanish Speaking standardized patients. We have tried to make clearer links between SCI content and SPM, Medical Skills and Masters Colloquium through scheduling sessions so that they integrate better with the other courses. We have removed most of the epidemiology content from year one, and moved it into a more integrated course with biostatistics in year 2. The second half of the second year will be focused on how to read and critique the medical literature, applying epidemiology and biostatistics knowledge they have learned in the previous semester. This will enhance the applicability of biostatistics and epidemiology to medicine. We are adding online content so that students can prepare for class ahead of time, and do mostly hands-on practical and application exercises during class time.

**PART B. REQUIRED COURSE FORM**

<b>Course title:</b>	Medical Skills I, II, III, and IV
<b>Sponsoring department or unit:</b>	Department of Medical Education
<b>Name of course director:</b>	Gordon L. Woods, MD, MHPE Maureen Francis, MD, FACP

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

Organizational Unit	Number of Teaching Staff Involved
Emergency Medicine	4
Family Medicine	9
Internal Medicine	17
Medical Education	8
Neurology	2
Obstetrics/Gynecology	6
Orthopedics	2
Pathology	2
Pediatrics	5
Psychiatry	4
Radiology	2
Surgery (Ophthalmology)	2

**COURSE OBJECTIVES**

Please note: This course is a required two year course and operates purposefully as a continuum over the first two years of the curriculum.

*Are there written objectives for the course?*

<b>Yes</b>	√	<b>No</b>	
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*Briefly summarize the objectives/content areas covered in the course.*

Upon completion of the course, students will be able to:	Content area
Communicate with patients, family members, staff, and peers in a respectful and diplomatic manner. (ICS-1, 3, Prof-2)*	Communication skills
Communicate using language that is clear, understandable, and appropriate to each patient. (ICS-1,3, Prof-5,7)	Communication skills
Maintain each patient's dignity and modesty during clinical encounters.	Professionalism

(Prof-8)

Identify the chief reason for the clinical encounter and use questions effectively to find the most pertinent history needed for decision-making. Clinical skills

(PC-6)

Select and perform the most pertinent physical examination maneuvers to search for findings that support or refute likely diagnoses under consideration. Clinical skills

(PC-4,6)

Concisely, accurately, and legibly record the patient's history in the medical record. (ICS-2, PC-3) Documentation skills

Use the patient's history, physical examination, and diagnostic studies to generate a list of active medical problems. (PC-6) Patient care

Orally present a patient's history and physical examination in an organized and concise manner. (ICS-1) Communication skills

List the appropriate indications, potential risks and intended benefits of common procedures such as venipuncture, placement an intravenous catheter, and lumbar puncture.(MK-3) Clinical decision-making

Proficiently perform several common clinical procedures such as venipuncture, placement of an intravenous catheter, and lumbar puncture. (PC-4) Procedural skills

\*Note: Alpha-numeric codes correspond with institutional learning objectives documented in database section II, ED-1A.

The Medical Skills course is tightly integrated with the organ system units and clinical presentations in the course Scientific Principles of Medicine (SPM). During each Medical Skills session, students interview and examine a standardized patient presenting with a problem from the clinical presentation being covered that week in SPM. Students use focused histories and physical examinations modeled after the practices of expert clinicians to identify the underlying pathologic process and reason their way to the most likely diagnosis. During this process, students apply concepts learned in SPM to relevant clinical cases, and extend their knowledge of basic science by applying what they have learned to clinical decision-making.

**Preparation for Teaching**

***Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?***

	Yes	No
Residents	√	
Graduate Students		√



Postdoctoral Fellows		√
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*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

The Medical Skills Course enlists clinicians from twelve clinical departments including clinician educators from the Department of Medical Education and chief residents from the residency training programs. These individuals are prepared for their teaching sessions through the following process:

- Instructional plans and course materials are prepared prior to each session. These are sent to participating clinician instructors in advance of their session. These instructional materials include learning objectives for the session.
- In preparation for their teaching, participating clinician instructors are invited to observe medical skills sessions and discuss the instructional plan with the course directors.
- Prior to their sessions, the course directors meet with participating clinician instructors for an optional instructors briefing on the teaching plan and review of the course materials. These briefings typically include a verbal "walk-through" of the session, during which comments, improvements, and suggestions are provided.
- Periodically, course directors will personally observe the instruction of clinician educators during the session. During breaks between sessions, the course directors will offer observations, suggestions, and feedback on the clinician educators' instruction.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

The Medical Skills course is taught on campus at the Paul L. Foster School of Medicine in the Western Refining Company Advanced Teaching and Assessment in Clinical Skills center.

**REQUIRED COURSE FORM** (Continued)

<b>Course title:</b>	Medical Skills I and II
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not Applicable.

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

√	Multiple-choice, true/false, matching questions		Laboratory practical items
	Fill-in, short answer questions		Problem-solving written exercises
√	Essay questions or papers		Presentations
	Oral exams		Preceptor ratings
√	OSCE or standardized patient examination	√	Other (describe) Standardized patient assessments

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

**Introduction:** At the beginning of each Medical Skills session, a short introductory briefing is held. During this briefing, students take a readiness-assurance quiz using the audience response system (ARS). This quiz is designed to assess each student's readiness to engage in the learning activity. Multiple-choice questions taken from the preparatory materials for the session are presented, and the responses to these questions are used to fill in critical knowledge caps prior to starting the learning activities.

**Standardized Patient Encounters:** Students regularly participate in Standardized Patient (SP) encounters throughout the course. The problems scripted into these SP exercises are aligned with the course content of the SPM course. Each student is rated by their SP using a checklist of performance criteria. After each SP encounter, students personally meet with the SP for one-on-one feedback on their verbal communication, demeanor, and nonverbal communication.

After the SP encounter, each medical student writes a progress note in the SOAP format. These progress notes are immediately printed and given back to the medical student as a hard copy. Students then meet as a group with a faculty member to write a group SOAP note. With one student typing on a computer that is displayed on a projection screen, the students craft a consensus SOAP note. The faculty member facilitates the students as they select the elements they would include in the Subjective and Objective sections. Then, the faculty member guides the students as they come to their Assessment and craft a Plan. During this process, each student compares their own progress note to the consensus note written by their classmates. The reason for including each element of history and physical exam is reviewed, and the steps in arriving at the correct diagnosis are discussed. As a student driven activity, this exercise has proven to be a powerful learning and motivating experience for the students. Most notably, students early in their education can participate in discussions at a fairly high-level of diagnostic sophistication.

**Clinical skill development sessions:** in addition to a standardized patient encounter, each week medical students also participate in a skill development activity. These activities might include performance of a procedure (such as phlebotomy, lumbar puncture, arthrocentesis), physical examination skills (the fine points of the abdominal exam, cardiac auscultation, examination of the cranial nerves) or basic study interpretation (chest x-ray, electrocardiogram, laboratory test results). Skill development sessions are typically taught in small groups (4-5 students) and are interactive. After an initial demonstration of the skill, students perform the procedure while the faculty member provides coaching, suggestions, and feedback on performance.

**Hospital patient visits and written H&P (second year only):** On two occasions, students accompany one of the course directors to University Medical Center for a Hospital patient interview. With consent, students interview and examine a hospitalized patient, using a data gathering form to guide their questioning and physical exam. Students write up the information gathered in the standard admission history and physical format and submit these to a course director. They subsequently receive back their history and physical with handwritten comments, suggestions, and feedback.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade?*

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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In addition to check sheet ratings, standardized patients provide written narrative comments on each student's performance during each learning sessions, and also for after each OSCE testing station.

#### COURSE OUTCOMES/EVALUATION

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

The Medical Skills Course is presented in the Clinical Simulation Center, a state-of-the-art instructional facility located within the Paul L. Foster School of Medicine. Resources available within the Clinical Simulation Center include:

- a teaching classroom with multimedia, smart board, and audience response system
- small conference / discussion rooms
- 10 fully furnished and equipped examination rooms with videotaping and audio taping
- a real-time video processing system for recording multiple SP encounters
- a web-based SP encounter database system for student evaluation
- a simulation laboratory with six Human Patient Simulators that can simulate a wide range of medical, emergency medicine, surgical, pediatric, and obstetric clinical scenarios
- two practice rooms equipped with a wide variety of partial task simulators
- A computerized haptic simulator using force feedback simulation for computerized procedural practice
- A flexible case discussion room equipped with exam table, smart board, flat screen video, multimedia computer, and movable seating for up to 20 students.

Academic Year: 2011-12

The two course directors, who are the principal course instructors, have together over 35 years of experience as full-time medical educators, including experience in the development of educational instructional materials, development of standardized patient scenarios, bedside clinical teaching, performance assessment, and course evaluation.

The members of the Simulation Center support staff have extensive experience in organizing and presenting a wide variety of instructional sessions and student examinations. They support curriculum administration, training and maintaining a panel of standardized patients, and website management.

The Medical Skills Course is perhaps the most teacher-intensive course in the entire curriculum. The course frequently utilizes clinician-educators from the Department of Medical Education; a small group of well experienced clinical instructors. In addition, physicians from University Medical Center who have clinical appointments to Texas Tech University regularly participate in teaching in the course. Physicians are selected for each session based on their clinical experience and credentials as well as their demonstrated skill in providing small group instruction.

***Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.***

Students complete an on-line anonymous evaluation of this course at the end of each semester. The survey employs a 5 point scale with 1 indicating a low level of satisfaction and 5 corresponding with a high level of satisfaction. Course evaluations are conducted by the Office of Curriculum, Evaluation and Accreditation.

MEDICAL SKILLS Semester I	Class of 2014	Class of 2015
This unit was well organized.	4.3	4.3
The learning objectives were clearly identified.	4.3	4.2
The course met the identified learning objectives.	4.4	4.3
I knew what I was supposed to be learning and why.	4.3	4.0
The amount of material presented was reasonable.	4.5	4.4
The materials posted on WebCT adequately prepared me for the learning sessions.	4.4	4.1
The methods used to evaluate my performance during this unit provided fair measures of my effort and learning.	4.2	4.1
The material covered is relevant to the practice of medicine.	4.6	4.6
The preparation materials helped me learn the material.	4.4	4.3
The Standardized Patient Encounters helped me learn the material.	4.6	4.4
The group skill building activities helped me learn the material.	4.0	4.1
The feedback I received helped me learn the material.	3.7	4.1
This course encourages me.	4.2	4.3
Overall, I learned useful knowledge and/or skills during this unit of Medical Skills.	4.6	4.6
N completing Survey	56	80
Class size	62	85
Response rate	90.3%	94.1%

MEDICAL SKILLS Semester II	Class of 2014	Class of 2015
This unit was well organized.	4.5	4.3
The learning objectives were clearly identified	4.5	4.3
The course met the identified learning objectives.	4.5	4.3
I knew what I was supposed to be learning and why.	4.4	4.3
The amount of material presented was reasonable.	4.5	4.3
The materials posted on WebCT adequately prepared me.	4.5	4.2
The methods used to evaluate my performance were fair.	4.2	4.1
The material covered is relevant to the practice of medicine.	4.6	4.6
The preparation materials helped me learn the material.	4.5	4.3
The Standardized Patient Encounters helped me learn the material.	4.5	4.3
The group skill building activities helped me learn the material.	4.3	4.3
The feedback I received helped me learn the material.	3.9	4.0
This course encourages me.	4.3	4.3
Overall, I learned useful knowledge and/or skills	4.6	4.5
N completing Survey	41	83
Class size	57	83
*Response rate	72%	100%

\*Please note: response rate low due to technical problems with on-line student evaluation application. This problem has been corrected.

Medical Skills Semester III	Class of 2013	Class of 2014
This unit was well organized.	4.2	4.1
The learning objectives were clearly identified	4.2	4.0
The course met the identified learning objectives.	4.3	4.0
I knew what I was supposed to be learning and why.	4.2	3.9
The amount of material presented was reasonable.	4.2	4.2
The materials posted on WebCT adequately prepared me.	4.3	3.4
The methods used to evaluate my performance were fair.	4.3	3.8
The material covered is relevant to the practice of medicine.	4.5	4.5
The preparation materials helped me learn the material.	4.2	3.7
The Standardized Patient Encounters helped me learn the material.	4.5	3.9
The group skill building activities helped me learn the material.	4.2	4.1
The feedback I received helped me learn the material.	4.3	3.9
This course encourages me.	4.4	3.9
Overall, I learned useful knowledge and/or skills	4.5	4.3
N completing Survey	25	57
Class size	37	62
Response rate	67.6%	91.9%

Medical Skills IV	Class of 2013	Class of 2014
This unit was well organized.	3.6	4.2
The learning objectives were clearly identified	3.6	4.3
The course met the identified learning objectives.	3.6	4.2
I knew what I was supposed to be learning and why.	3.5	4.3
The amount of material presented was reasonable.	3.8	4.3
The materials posted on WebCT adequately prepared me.	3.6	3.9
The methods used to evaluate my performance were fair.	3.8	4.2
The material covered is relevant to the practice of medicine.	4.2	4.4
The preparation materials helped me learn the material.	3.8	4.0
The Standardized Patient Encounters helped me learn the material.	4.0	4.2
The group skill building activities helped me learn the material.	3.7	4.3
The feedback I received helped me learn the material.	3.8	4.1
This course encourages me.	3.7	4.3
Overall, I learned useful knowledge and/or skills	3.9	4.4
N completing Survey	14	55
Class size	37	57
Response rate	37.8%	96.5%

*Identify major successes in the course and problems to be overcome.*

As can be seen from the evaluation results reported above, students are highly satisfied with the Medical Skills Course. Data provided by the Office of Curriculum, Evaluation, and Accreditation reveals that Medical Skills is the highest rated course in the pre-clerkship curriculum. The consistency of these high ratings over semesters and years is also noteworthy.

Students in the charter class were dissatisfied with the level and quality of feedback they received in the Medical Skills course. This issue was reviewed in a meeting of the Curriculum and Educational Policy Committee and the recommendation was made to the course director to revise the procedures for providing feedback. Responding to this recommendation, the following changes have been implemented.

1. As students see standardized patients in pairs, the second student now functions as a peer evaluator. The peer observers are provided with a list of performance criteria that are customized to each individual clinical presentation. Immediately after the encounter, the student observer provides feedback to their peer on their performance relative to these criteria.
2. Immediately after each test can counter, the standardized patients continue to give their impressions about the students verbal and nonverbal communication skills directly to the student.
3. Students receive a copy of their individual ratings from their standardized patient immediately following each SP encounter.
4. The facilitating faculty member receives aggregate data regarding the SP checklist ratings. During the small group debriefing following the SP encounter, the group receives general feedback on their performance.

5. During the SP encounter debriefing session, students write a consensus group SOAP note (see above). During this exercise, each student has a hard copy of their own individual SOAP note for comparison with the note being written by the group. In this way, students can compare their own performance with that of the best performing students in the group.

These changes have resulted in a considerable improvement in student satisfaction with this component of the course.

### Successes:

**Integration:** A particular success of the Medical Skills Course has been the close integration of the course curriculum with topics covered in Scientific Principles of Medicine. This integration allows each medical skills session to build on basic sciences learning presented during the previous days. Through the application of basic sciences learning to clinical problems, the Medical Skills Course has enhanced the students understanding of principles learned in SPM. In this way, the two courses as have developed synergism, with each course supporting the learning goals of the other.

**Communication skills and professional deportment:** During the preclinical years, each medical student participates in 32 standardized patient encounters, and is the leading interviewer in at least half of these encounters. As a result, students have multiple observations of their bedside demeanor and communication skills, and receive feedback on their communication and professionalism after each of these encounters. As a result, by the end of the second year students have improved their bedside communication skills and professionalism. We have observed that virtually all of the students conduct themselves with patients in a considerate, articulate, and diplomatic manner.

**Clinical decision-making:** Each Medical Skills session is situated within a week of focused curriculum on a clinical topic. This has allowed the course directors have to present fairly complex clinical problems to the pre-clerkship students in the course. The course directors have seen that the students are consistently able to engage in medical decision-making at a sometimes surprisingly high level of sophistication. As a result, the Medical Skills Course has been particularly effective in preparing students for the third year clerkships.

### Challenges:

**Feedback:** Changes in the processes for providing feedback to students have improved each students understanding of their individual performance. However, a missed opportunity persists. Each student is videotaped doing their SPM counters, and one-on-one review of these videotaped encounters is a powerful means of improving performance in a number of learning domains. Unfortunately, limited faculty availability has been a barrier to developing regular, one-on-one review of these videos with students. A potential solution is developing with recruitment of an additional clinical College Master. This faculty member would serve as a third co-director of the Medical Skills Course. With this additional faculty member, course administrative work can be distributed, opening time for clinical faculty members to begin regular reviews of video tapes with students.

**Assessment of professionalism:** Long an elusive goal of medical education, individual medical students have occasionally deported themselves unprofessionally. Some of these incidents have been dealt with and in an ineffective manner because of the lack of a clear description of appropriate professional behavior. The College Masters have begun the process of developing descriptors of professional behavior, with the intention of using these in the assessment of professional behavior. These descriptors will be applicable to student conduct in the Medical Skills Course sessions and will enhance the faculties ability to identify unprofessional behavior and deal with it effectively.



<b>PART B. REQUIRED COURSE FORM</b>
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<b>Course title:</b>	Masters' Colloquium (I, II, III, IV)
<b>Sponsoring department or unit:</b>	Medical Education
<b>Name of course director:</b>	Stephan Sandroni, MD

*List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course and the number of instructional staff from each such unit:*

<b>Organizational Unit</b>	<b>Number of Teaching Staff Involved</b>
Department of Medical Education	5

### COURSE OBJECTIVES

*Are there written objectives for the course?*

Yes	X	No	
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*Briefly summarize the objectives/content areas covered in the course.*

This is a required course for first and second year students that meet weekly in two hour sessions. Students are divided into 4 equal-sized learning communities, "Colleges," and instruction takes place within each college under the direction of a College Master. The topics addressed in this course relate to the following broad themes: the role of the physician, student acculturation into this role, professionalism, ethics, humanities, history of medicine, critical thinking, problem solving, judgment, communication skills, life-long learning, health care system issues, and controversies in medicine.

Most of the time the topics for the Masters Colloquium are coordinated with the content covered in Scientific Principles of Medicine. The principle instructional method is facilitated group discussion although a variety of instructional modalities are also used including presentation of artistic compositions, review of film and video, reflective writing, critical analysis of readings, and workshop style break-out activities. A list of the topics addressed in the Masters Colloquium in 2011-12 is included in the appendix at the end of this course description.

Course learning objectives, and how they relate to the PLFSOM Institutional Learning Objectives described in Section II (Educational Program) ED-1, 1-A (by alpha-numeric code) are listed below:

### KNOWLEDGE

- Describe fundamental ethical principles and human values, and how these apply in patient care and medical practice (Prof-1)
- Describe the components of the national health system and its funding and how this system affects individual and community health (SPB-2)



- Discuss financial, political and cultural situations that may present conflicts of interest in the practice of medicine (Prof-2)

### **BEHAVIORS**

- Display compassion in interactions with all patients regardless of race, gender, ethnicity, sexual orientation, socioeconomic status and disability (Prof-3)
- Communicate clearly and in a civil manner with colleagues and instructors in the medical learning environment (ICS-1)
- Employ the highest ethical principles in interpersonal relationships, patient care, and research (Prof-4)
- Identify the need to employ self-initiated learning strategies (problem definition, resource identification, critical appraisal) when approaching new challenges, problems, or unfamiliar situations (PBL-7)

### **ATTITUDES**

- Demonstrate respect for the beliefs, opinions and privacy of peers, colleagues, and instructors in the medical learning environment (Prof-5)
- Hold respect for the values of open-mindedness, awareness of the values of others, and mindfulness of once upon values.
- Provide compassionate and culturally appropriate care in all stages of the life cycle (ICS-1, Prof-3)
- Recognize when to take responsibility and when to seek assistance based on one's position, training and experience (PBL-4)
- Preserve patient's dignity in all interactions (Prof-8)
- Advocate for the interests and needs of the patient over one's own immediate needs (Prof-9)

### **SKILLS**

- Identify and critically appraise electronic resources (appropriate to problem under study) for one's own education, patient education, and direct patient care (PBL-5)
- Given an ethics case, be able to identify the key ethical dilemma, identify the ethical principles that are in conflict, formulate arguments both for and against each option, weigh these arguments, and select the best course of action.
- Communicate knowledge, interpretation and recommendations orally and/or in writing to a wide range of professional or lay audience in culturally appropriate ways (ICS-3)
- Use a variety of educational modalities in pursuit of life-long learning (PBL-3, 7)

### **Preparation for Teaching**

All teaching is done by the college Masters who meet weekly to plan their sessions, to identify topics and resources, and to make decisions about approach. The college Masters are committed to ensuring that students address comparable issues and employ equivalent methods for assessing student performance (e.g., use of common rubrics for the evaluation of written assignments).

*Are any of the following involved in the course as lecturers, small group facilitators, and/or laboratory instructors?*

	<b>Yes</b>	<b>No</b>
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Residents		X
Graduate Students		X
Postdoctoral Fellows		X

*If yes, describe how they are informed about the course objectives and prepared for their teaching role.*

Not applicable.

*If the entire course is taught at more than one site (e.g., at geographically separated instructional sites), describe how instructional staff at all sites are oriented to the course objectives and the grading system.*

This course is taught on the campus of the Paul L. Foster School of Medicine in two sections each corresponding to the learning communities (Colleges) that have been established in the school. As described above, the Masters Colloquium is delivered by the college Masters for their respective Colleges. The Colloquium has a single syllabus and the Masters meet weekly to coordinate their teaching. The learning goals and topics addressed are the same for each College, but flexibility is permitted in the manner in which specific objectives are achieved.

**REQUIRED COURSE FORM (Continued)**

<b>Course title:</b>	Masters' Colloquium I, II, III, IV
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**Student Evaluation**

*If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:*

<b>Year:</b>			
<b>Score:</b>			

Not applicable

*Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:*

<input type="checkbox"/>	Multiple-choice, true/false, matching questions	<input type="checkbox"/>	Laboratory practical items
<input type="checkbox"/>	Fill-in, short answer questions	<input type="checkbox"/>	Problem-solving written exercises
<input checked="" type="checkbox"/>	Essay questions or papers	<input type="checkbox"/>	Presentations
<input type="checkbox"/>	Oral exams	<input type="checkbox"/>	Preceptor ratings
<input type="checkbox"/>	OSCE or standardized patient examination	<input type="checkbox"/>	Other (describe)

*Briefly describe any formative assessment activities that occur during the course (practice examinations, quizzes, etc.)*

College Masters meet individually with students in their respective colleges about their performance in the Masters' Colloquium and they also address issues related to student performance in other components of the curriculum. During the first two years of medical school, the college Masters serve as the primary advisors and mentors to students at the PLFSOM.

*Is a narrative evaluation of student performance submitted in addition to or as a component of the course grade? (check)*

<b>Yes</b>	<input checked="" type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
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Narrative feedback is provided on required written reflective exercises and analytic papers. The college Masters also collaborate with the associate dean for student affairs and the senior associate dean for medical education in the drafting of summary narratives based on small group facilitator feedback forms. These summaries are uploaded in the student portfolio.

**COURSE OUTCOMES/EVALUATION**

*Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).*

With the expansion in class size from 40 students in our charter class (Class of 2013) to the current 80 students, we are increasing the number of colleges—from two-to-four, and increasing the number of Masters from 4-to-8. Three new Masters were selected in the 2011-12 academic year and we are actively recruiting for the final Master as of this writing [May 12, 2012]. This number is adequate to meet the teaching needs of the Colloquium and the mentoring needs of the college. Each college has its own

“commons space” adjacent to the Masters’ offices. The Colloquium takes place in two “case study” rooms designed on the Harvard Business School model or in one of two flexible use large seminar rooms. Each setting is appropriate for this discussion-intensive course. IT and audiovisual resources are readily available. The Colloquium has a course coordinator who is assigned to this course full time.

*Provide a summary of student feedback on the course (and any other available evaluation data) for the past two academic years; include the percent of students providing evaluation data. If the course is new or has been significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.*

Students complete on-line anonymous course evaluations at the end of each semester for this course. A five point scale is employed with 1 indicating the respondent “strongly disagrees” and 5 indicating the respondent “strongly agrees” with the item in question. The results of these evaluations for the past two academic years are listed below:

MC I	Class of 2014	Class of 2015
Masters Colloquium was well organized.	3.5	4.0
The learning objectives were clearly identified.	3.2	3.4
The course met the identified learning objectives.	3.3	3.7
The amount of material presented was reasonable.	3.8	4.2
I knew what I was supposed to be learning and why.	3.3	3.7
The methods used to evaluate my performance were fair	3.5	3.6
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	4.0	3.9
The course format is appropriate.	3.7	3.8
Master's Colloquium broadens my perspectives	3.8	3.8
Master's Colloquium challenges my assumptions.	3.3	3.7
Master's Colloquium helps me understand what is expected of me as a doctor.	3.9	3.8
Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	3.6	3.8
I feel the Masters Colloquium has been valuable to me	3.4	3.7
Number of Responses	52	78
Class Size	57	83
Response Rate	91%	94%

MC II	Class of 2014	Class of 2015
Masters Colloquium was well organized.	3.9	3.9
The learning objectives were clearly identified.	4.0	3.8
The course met the identified learning objectives.	3.9	3.8
The amount of material presented was reasonable.	4.3	4.1
I knew what I was supposed to be learning and why.	4.0	3.8
The methods used to evaluate my performance were fair	4.0	3.9
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	4.3	4.0
The course format is appropriate.	3.9	3.9

Master's Colloquium broadens my perspectives	4.1	4.0
Master's Colloquium challenges my assumptions.	3.7	3.9
Master's Colloquium helps me understand what is expected of me as a doctor.	4.0	3.9
Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	4.0	4.0
I feel the Masters Colloquium has been valuable to me	3.9	3.9
Number of Responses	42	70
Class Size	57	83
Response Rate	74%	84%

MC III	Class of 2014	Class of 2015
Masters Colloquium was well organized.	3.9	4.0
The learning objectives were clearly identified.	3.8	4.0
The course met the identified learning objectives.	3.7	3.9
The amount of material presented was reasonable.	4.1	3.9
I knew what I was supposed to be learning and why.	3.7	3.9
The methods used to evaluate my performance were fair	3.7	3.9
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	4.1	3.9
The course format is appropriate.	3.9	3.9
Master's Colloquium broadens my perspectives	3.9	3.9
Master's Colloquium challenges my assumptions.	3.8	3.9
Master's Colloquium helps me understand what is expected of me as a doctor.	3.7	3.9
Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	3.7	3.8
I feel the Masters Colloquium has been valuable to me	3.7	3.8
Number of Responses	27	56
Class Size	37	57
Response Rate	73%	98%

MC IV	Class of 2013	Class of 2014
Masters Colloquium was well organized.	4.1	4.1
The learning objectives were clearly identified.	3.9	4.1
The course met the identified learning objectives.	3.9	4.1
The amount of material presented was reasonable.	4.4	4.1
I knew what I was supposed to be learning and why.	3.9	4.0
The methods used to evaluate my performance were fair	4.1	4.0
I understand how the Masters' Colloquium content is applicable to the practice of medicine.	3.8	4.1
The course format is appropriate.	4.1	4.1
Master's Colloquium broadens my perspectives	4.1	4.1
Master's Colloquium challenges my assumptions.	4.2	4.0
Master's Colloquium helps me understand what is expected of me as a doctor.	3.9	4.1

Overall, I learned useful knowledge and/or skills during Masters' Colloquium.	4.1	4.1
I feel the Masters Colloquium has been valuable to me	4.1	4.0
Number of Responses	18	55
Class Size	37	57
Response Rate	49%	96%

*Identify major successes in the course and problems to be overcome.*

**Successes:**

**Engagement:** In Spite of the fact that the topics are broad, discussions focus on controversy and ambiguity, and the instructional method relies heavily on student participation, the Masters Colloquium is well attended and the sessions are eagerly engaged by the students.

**Bioethics:** by the end of the second year, the majority of students are able to take an ethics case, identify the key issue, articulate the ethical principles at work in the case, formulate arguments, and weigh the arguments against each other.

**Civil discourse:** an additional success is the respect for open discussion held by all the students. The Colloquium is a forum for open discussion of difficult issues. Some of the topics touch on polarizing issues. Students are encouraged to state their positions while treating others who hold different positions with respect.

**Reflection:** An additional success of the Colloquium is the openness that students demonstrate in their affective writings. The assignments ask the students to self-disclose their past decisions, feelings, and shortcomings. The students have written these essays with remarkable honesty, but many have described a sense of personal growth from these exercises.

**Challenges:**

**Curriculum:** Large group discussion is an inherently unwieldy instructional method, and the Masters Colloquium sessions have been somewhat uneven in quality. Some sessions has stimulated energetic participation by the students, while others fell flat. The College Masters continue to learn how to craft discussion cases and questions that contain the optimal level of ambiguity, challenge, relevance, novelty, and urgency. The weekly session planning meetings of the College Masters has become an important forum for development of these skills.

**Professionalism:** The assessment of professionalism has long been a challenge for medical educators. The current climate in medical education, driven principally by the ACGME, is strongly focused on developing new measures of professional behavior, and using these to assess trainees. The College Masters are responding to this challenge by initiating a collaborative effort to define the domains of professional behavior relevant to pre-clerkship trainees (and subsequently students in the clerkships), and subsequently write developmental descriptors of professional behavior. Once a derivation set of descriptors has been written, the College Masters hoped to prospectively validate these descriptors.

**Students in the clinical years:** Students in the pre-clerkship years have a strong sense of affiliation with their college and College Masters. However, once they leave the medical school and begin working in the

medical center, this affiliation is quickly lost. However, students in their clerkships are experiencing challenges in many domains, including difficult patient decisions, complex family dynamics, working with fatigued residents and attending physicians, ethical dilemmas, socioeconomic constraints, ethnic disparities, unfamiliar cultural norms, and other tough issues. These students would clearly benefit from a discussion forum such as the Masters Colloquium, but there simply is no place in the clerkships scheduled to situate such a forum. In addition, intersessions are not held between the clerkships, so there is no opportunity to bring all of the third-year students together from their various clerkship posts. Extending the work of the colleges into the clerkship year is a particularly important and difficult problem.

## **Appendix: Masters Colloquium Topics**

### **Year 1 (MC I, II)**

1. Creative composition: the anatomic donor
2. The antibiotic problem: Introduction to ethics
3. Learning principles
4. Narrative in medicine: Common text exercise
5. Economics of health care: Introduction to Medicare, Medicaid
6. The patient's experience of chronic disease
7. Decision-making heuristics
8. Ethics of pain management
9. Honesty and confidentiality
10. Doctors facing their fears
11. Empathy (parts 1,2, 3)
12. Diagnostic imaging: Two edged sword
13. The big picture: Ethical issues in genetic screening of populations
14. The risk-benefit ration of cancer therapy
15. Empathy and ethics
16. The ethics of life sustaining interventions
17. Imelda (film)
18. Reflections on a picture
19. Research Ethics (parts 1 and 2)
20. Ethics of genetic screening of individuals

### **Year 2 (MC III, IV)**

1. Review of summer/SARP projects
2. Health care costs and sustainability
3. Awareness of disability: blindness and deafness
4. How doctor's face their fears
5. Professionalism
6. Drug companies and health care
7. Dialysis and transplantation: Access to care
8. Global health issues
9. Systemic barriers to effective therapy
10. Cultural interaction
11. Professionalism: Getting along in the sand box
12. Implications of assisted reproduction
13. Gender issues in medicine
14. Physician errors
15. Patient autonomy and decision-making
16. Career-life balance
17. Pediatric ethical decision-making
18. The chronically ill child: Doctor's sway and optimism
19. Real-time literature searching
20. Orientation to third year: Panel discussion