| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Masters' Colloquium (I through IV) |
| **Sponsoring department or unit:** | Medical Education |
| **Name of course director:** | Kathryn McMahon, 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 (College Masters) | 4 |

## Course Objectives

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

| | | | |
|---|---|---|---|
| **Yes** | **X** | **No** | |

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

This course extends through the first two years of the curriculum. The course provides instruction in many of the skills and attributes that could be described as the "art of medicine". The topics stressed in this course relate to the following broad themes: professionalism, ethics, critical thinking and judgment, controversies in medicine, life-long learning, and health care system issues. Diverse teaching methods are employed in this course. The format of the course is to cover the specific topics of the Colloquium in the context of or using examples from the clinical presentation(s) under concurrent discussion in the SPM course.

Course objectives are tied directly to the institutional objectives and the related outcome measures as described in Section II (Educational Program), Statements ED-1 and ED-1A, respectively. Course objectives are:

KNOWLEDGE

- Apply scientific methods for the discovery and interpretation of knowledge and describe how to apply these methods to solve laboratory and clinical problems
- Describe fundamental ethical principles and how they apply in patient care and medical practice
- Describe the components of social structure (e.g., family, neighborhood, community) and the role each plays in health behavior, disease prevention, and the treatment of illness

| **Course title:** | ***Masters' Colloquium (I through IV)*** |
|---|---|

- Describe the components of the national health system and its funding and how this system affects individual and community health
- Discuss financial, political and cultural situations that may present conflicts of interest in the practice of medicine

BEHAVIORS

- Display compassion in interactions with all patients regardless of race, gender, ethnicity, sexual orientation, socioeconomic status and disability
- Communicate clearly, respectfully and compassionately with patients, families, colleagues, and members of the health care team
- Employ the highest ethical principles in interpersonal relationships, patient care, and research
- Identify the need to employ self-initiated learning strategies (problem definition, resource identification, critical appraisal) when approaching new challenges, problems, or unfamiliar situations

ATTITUDES

- Demonstrate respect for the beliefs, opinions and privacy of patients, families, and members of the health care team
- Demonstrate scrupulous honesty in all professional matters
- Provide compassionate and culturally appropriate care in all stages of the life cycle
- Recognize when to take responsibility and when to seek assistance based on one's position, training and experience
- Preserve patient's dignity in all interactions
- Advocate for the interests and needs of the patient over one's own immediate needs

SKILLS

- Identify and critically appraise electronic resources (appropriate to problem under study) for one's own education, patient education, and direct patient care
- Communicate knowledge, interpretation and recommendations orally and/or in writing to a wide range of professional or lay audience in culturally appropriate ways
- Use a variety of educational modalities in pursuit of life-long learning

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Masters' Colloquium (I through IV)*** |
|---|---|

## 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?***

***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 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. 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.

## 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 |

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Masters' Colloquium (I through IV)*** |
|---|---|

***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 |
| X | Essay questions or papers | X | Presentations |
| | Oral exams | | Preceptor ratings |
| | OSCE or standardized patient exam | | Other (describe) |

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

Written reflective and descriptive essays, if not adequate in their first submission, are returned to the student with comments from the College Master. The student has opportunity to revise the essay and resubmit for evaluation. This iterative process can occur multiple times if need be.

Questions dealing with "testable" content (e.g., questions related to ethical concepts and principles and their application are included as part of the formative weekly assessment process as appropriate. This gives students practice and feedback in responding to USMLE style questions.

Students are given advice from either one or both Masters in an individual (if needed) or group meeting on presentations they are developing for a up-coming or later session.

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

| **Yes** | **X** | **No** | |
|---|---|---|---|

Narrative feedback is provided in the assessment of student essays and reflection exercises (see above). The College Masters collaborated in the development of a rubric to guide this feedback. A copy of the rubric can be found in the Appendix.

**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 curriculum has been designed around the concept of the Medical Student College and the College Master. Each college currently has two full-time college masters. The Medical Education Building includes four areas designated as space for the colleges that include teaching and office space to accommodate the various needs anticipated for this format. The major focus of the college masters is the

| **Course title:** | ***Masters' Colloquium (I through IV)*** |
|---|---|

college, the students assigned to the college, and the instruction, evaluation, and mentoring associated with college activities. Corresponding with the planned expansion of the student body from 40-100 students per year, we will expand the number of Colleges from two to four. At that point each college will be led by a single College Master.

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.

The Masters Colloquium I was evaluated at the end of the semester by students utilizing an anonymous on-line evaluation system. This system employs a 5-point scale with 1 corresponding to strong dissatisfaction and 5 corresponds with strong satisfaction. Because this course is offered within each of the two Colleges (Red and Blue) each was evaluated separately by the students assigned to each of the Colleges. The results of this evaluation are reported for each College. The numbers represent the mean Likert score (standard deviation).

**FALL 2009**

| | Red College (12/20 responses) | Blue College (16/19 responses) |
|---|---|---|
| • Clear learning objectives: | 4.0 (1.2) | 4.3 (0.7) |
| • Organization of course: | 4.0 (1.3) | 4.5 (0.6) |
| • Appropriate instructional methods: | 4.1 (1.2) | 4.3 (0.7) |
| • Clinical relevance: | 3.9 (1.4) | 4.4 (0.9) |
| • Reasonable workload expectations: | 3.9 (1.3) | 4.4 (1.0) |
| • Assessment methods fair | 4.2 (1.0) | 4.1 (1.1) |
| • Gained useful knowledge | 4.2 (1.3) | 4.2 (0.7) |
| • Valuable learning experience | 4.0 (1.3) | 4.0 (0.8) |
| • Colloquium broadens perspective | 3.7 (1.2) | 3.8 (0.9) |

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Masters' Colloquium (I through IV)*** |
|---|---|

**SPRING 2010**

| | Red College (17/20 responses) | Blue College (14/19 responses) |
|---|---|---|
| • Clear learning objectives: | 4.0 (1.5) | 4.5 (0.7) |
| • Organization of course: | 4.0 (1.5) | 4.4 (0.6) |
| • Appropriate instructional methods: | 4.0 (1.5) | 4.4 (0.9) |
| • Clinical relevance: | 4.3 (1.0) | 4.6 (0.5) |
| • Reasonable workload expectations: | 4.4 (1.1) | 4.5 (0.7) |
| • Assessment methods fair | 4.2 (1.3) | 4.4 (0.9) |
| • Gained useful knowledge | 4.3 (1.3) | 4.5 (0.5) |
| • Valuable learning experience | 3.9 (1.6) | 4.4 (0.5) |
| • Colloquium broadens perspective | 3.9 (1.6) | 4.4 (0.5) |
| MEAN LIKERT | 4.1 | 4.3 |

As can be seen, there is a high level of satisfaction with this course among those who responded to the survey. Moreover, the levels of satisfaction are comparable across the two Colleges.

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

SUCCESSES:

- Establishment of the College as a home for students.
- Establishment of very interactive sessions in which students feel comfortable with each other and the College Masters about topics that do not have definitive answers.
- Laid the ground work of ethics of medicine in the critical evaluation of language and communication.

CHALLENGES/PROBLEMS TO OVERCOME:

- Pressures of other courses, particularly SPM, made it difficult for students to focus on Colloquium assignments or learning objectives at any time outside of session itself.

  NOTE: This has been addressed by learning objectives and reading assignment constraints in the SPM course.
- Coordination between Colleges so students feel the workloads are similar.

  NOTE: This has been addressed by continued College Masters meetings on a weekly basis to attempt to consider common approaches to sessions. Admittedly, this issue continues to be

| **Course title:** | ***Masters' Colloquium (I through IV)*** |
|---|---|

somewhat of a potential problem as the instruction methods used for a given session can vary between colleges.

- Identify a written assignment style other than only reflective writing that allows for personal development of critical thinking and appraisal skills without forcing the student to divulge sensitive information for a grade.

  NOTE: A analytical writing piece assignment style has been developed to be used beginning in the academic year of 2010-2011. It will be used in both Year 1 and Year 2 of the Masters Colloquium courses. The grading rubric is available in the Appendix.

| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Medical Skills |
| **Sponsoring department or unit:** | Department of Medical Education |
| **Name of course director:** | Gordon L. Woods, MD, MHPE |

***List all organizational units (e.g., physiology department, nursing school, and 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 |
|---|---|
| Clinical Skills Simulation Center | 2 |
| Department of Medical Education | 7 |
| Internal Medicine | 5 |
| Family Medicine | 2 |
| Emergency Medicine | 4 |
| Pediatrics | 4 |
| Obstetrics/Gynecology | 2 |
| Psychiatry | 1 |
| Ophthalmology | 1 |

## Course Objectives

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

| | | | |
|---|---|---|---|
| **Yes** | √ | **No** | |

***REQUIRED COURSE FORM (Continued)***

| ***Course title:*** | ***Medical Skills I,II, III & IV*** |
|---|---|

***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. | Communication skills |
| Communicate using language that is clear, understandable, and appropriate to each patient. | Communication skills |
| Maintain each patient's dignity and modesty during clinical encounters. | Professionalism |
| Identify the chief reason for the clinical encounter and use questions effectively to find the most pertinent history needed for decision-making. | Clinical skills |
| Select and perform the most pertinent physical examination maneuvers to search for findings that support or refute likely diagnoses under consideration. | Clinical skills |
| Concisely, accurately, and legibly record the patient's history in the medical record. | Documentation skills |
| Use the patient's history, physical examination, and diagnostic studies to generate a list of active medical problems. | Patient care |
| Orally present a patient's history and physical examination in an organized and concise manner. | Communication skills |
| List the appropriate indications, potential risks and intended benefits of common procedures such as venipuncture, placement an intravenous catheter, and lumbar puncture. | Clinical decision-making |
| Proficiently perform several common clinical procedures such as venipuncture, placement of an intravenous catheter, and lumbar puncture. | Procedural skills |

## 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 | | √ |

***REQUIRED COURSE FORM (Continued)***

| | |
|---|---|
| ***Course title:*** | ***Medical Skills I,II, III & IV*** |

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

The Medical Skills Course enlists clinicians from a number of clinical departments, 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 several means:

- Instructional plans and course materials are prepared prior to each session. These are sent to participating clinician instructors in advance of each session for their review. Typically, revisions of these instructional materials are exchanged several times between the participating clinician instructors and the medical skills course faculty, with multiple revisions and suggestions included. These instructional materials typically include objectives for the teaching session.
- In preparation for their teaching, participating clinician instructors are invited to observe medical skills sessions.
- Prior to their sessions, the course faculty meet with participating clinician instructors to review their instructional materials and teaching plan. These preparatory sessions typically include a "walk-through" of the instructional session, during which comments, improvements, and suggestions are provided.

***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 Medical Skills Course is taught only at one site; The Clinical Skills Simulation Laboratory at 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 |

***REQUIRED COURSE FORM (Continued)***

| | |
|---|---|
| ***Course title:*** | ***Medical Skills I,II, III & IV*** |

***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 exam | | Other (describe) |

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

**Introduction:** At the beginning of each Medical Skills session, a short introductory discussion is held. During this discussion, and audience response system (ARS) is used to assess student 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 important content that needs to be understood prior to engaging in the session activities.

**Standardized Patient Encounters:** Students participate in Standardized Patient (SP) encounters on a regular basis throughout the course. The problems scripted into these exercises matched the course content of the SPM course. Students are rated by the 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.

Summative information is available immediately after the SP encounter. This aggregate information is reviewed with the students in small group discussion, and recommendations are made for improvement in performance.

At the end of each SP encounter, medical students write a progress note. These progress notes are printed and distributed to the medical skills faculty members. Handwritten commentary are provided by the faculty members, including suggestions for improvement and documentation, feedback on overlooked questions and physical findings, feedback on this tour inappropriate diagnostic considerations, and feedback regarding management plan.

**Clinical skill development sessions:** each week, medical students participate in a skill development activity. These activities might include performance of a procedure (such as phlebotomy, lumbar puncture, arthrocentesis), physical examination skills (the abdominal exam, cardiac auscultation, examination of the cranial nerves) or study interpretation (chest x-ray interpretation, EKG interpretation, laboratory test results interpretation).

***REQUIRED COURSE FORM (Continued)***

| ***Course title:*** | ***Medical Skills I,II, III & IV*** |
|---|---|

These sessions are typically taught in small groups by clinical faculty members. The presentation/discussions are interactive, and typically include practice examples and discussion cases. Faculty members provide coaching, suggestions, and feedback continuously throughout the sessions.

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

| | | | |
|---|---|---|---|
| **Yes** | | **No** | √ |

## 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

The course director, who is the principal instructor, has 22 years of full-time experience in clinical and medical school teaching, including experience in development of educational instructional materials, development of standardized patient scenarios, bedside clinical teaching, performance assessment, and course evaluation.

The course support staff of the Simulation Center has extensive experience in organizing and presenting a wide variety of instructional sessions and student examinations, and also support curriculum and website management.

The Medical Skills Course is perhaps the most teaching-intensive course in the entire curriculum. The course frequently utilizes the skills of the clinician-educator's from the Department of Medical Education, who are particularly skillful clinical instructors. These clinicians are flexible and adaptable in their

instructional skills, are able to deliver instruction on a broad range of topics, engage students interactively, provide effective coaching and feedback on skills performance, and model exemplary professional behavior as they teach. In addition, physicians from University Medical Center regularly participate in teaching in the course.

***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.***

At the time of this writing, student feedback is available for the first year of the course. Students completed on-line anonymous evaluations of the Medical Skills Course at the end of each semester. The survey utilized a 5-point scale, with 1 corresponding to a low level of satisfaction and 5 representing high satisfaction. Students rated the course in the following areas.

| | **First semester** | **Second semester** |
|---|---|---|
| **Survey response rate** | 29/39 (74.3%) | 34/39 (87%) |
| 1. Clearly identified learning objectives | 4.48 | 4.47 |
| 2. Learning materials adequately prepared students for each session | 4.55 | 4.59 |
| 3. Course organization | 4.27 | 4.56 |
| 4. Appropriateness of instructional methods to the material covered | 4.41 | 4.56 |
| 5. Accomplishment of learning objectives by instruction provided | 4.31 | 4.53 |
| 6. Relevance of the material to the practice of medicine | 4.66 | 4.65 |
| 7. Volume of preparatory materials | 4.55 | 4.53 |
| 8. Evaluation methods provided fair measures of my effort and learning | 4.27 | 4.32 |
| 9. Feedback methods were appropriate and facilitated my learning | 4.00 | 3.41 |
| 10. Gained useful knowledge | 4.69 | 4.59 |
| 11. Inspired and encouraged toward professional goals | 4.52 | 3.35 |

Overall, students gave high ratings for clarity of learning objectives, adequacy of learning materials, relevance of the material to practice, and volume of preparatory materials. Between the first and second semesters, a trend toward improvement was seen in course organization, accomplishment of learning objectives, and fairness of evaluation methods. Between the two semesters, student ratings of two items declined: item 9) and item 11). These two items are identified as concerns requiring further study and intervention.

***REQUIRED COURSE FORM (Continued)***

| | |
|---|---|
| ***Course title:*** | ***Medical Skills I,II, III & IV*** |

**Item 9) Feedback methods were appropriate and facilitated my learning.**

In the past, during the Medical Skills Course sessions in which students have seen a standardized patient, feedback has been provided in four ways:

1. The standardized patients, while still "in character", provide general comments about the students' interpersonal skills.
2. Standardized patients rate each student on a list of 15-20 criteria. These scores are aggregated and a faculty member reviews the aggregate data with students in small group session immediately following the SP encounter.
3. After the session, individual students can make an appointment to meet with a faculty member and review their videotape of the SP encounter.
4. For 72 hours after each session, medical students can review their videotape of the SP encounters over the Internet using the Web SP system.

In the past, each student's individual ratings on the specific performance criteria have not been released to them. On the survey, students specifically requested these ratings. Physicians have not been available to meet individually with students and review their videotapes. On the survey, students have specifically requested feedback from physicians on their performance during the SP encounters.

These issues were reviewed in a meeting of the Curriculum and Education Policy Committee. It was recommended that the course director revise the processes by which students receive feedback so that students should receive individual feedback on their performance during each SP encounter. Responding to this recommendation, the following changes are being implemented.

1. As students see standardized patients in pairs, the second student will function as a peer evaluator. The peer servers will have a list of criteria, and immediately after the encounter will provide feedback to their peer on their performance relative to these criteria.
2. Standardized patients will continue to give general impressions about overall communication skills while still "in character".
3. Students will receive a copy of their individual ratings from their standardized patient.
4. In small groups, students will continue to review aggregate data with a faculty member. During those review sessions, they will be able to reflect their individual ratings against those of the group at large.
5. A panel of faculty members will be recruited to serve as video recording reviewers. A rotating schedule will be used so that all students have the opportunity to have several of their videotapes reviewed with a faculty member during the course of each year.

**Item 11) I felt inspired and encouraged toward my professional goals.**

During the year, students had particularly high ratings of several sessions that were conducted by guest faculty members from University Medical Center. These sessions included a demonstration of fracture stabilization by a trauma surgeon, a workshop on the lower extremity examination by an orthopedic

surgeon, and a workshop on the heart exam by a cardiologist. The students were particularly impressed by the enthusiasm and commitment of these physicians and the relevance of the lessons covered in the sessions.

In order to enhance the inspirational aspect of the Medical Skills Course, efforts are underway to recruit more exemplary teachers from various clinical disciplines to participate in course instruction. Some of these instructors include:

1. Several obstetrician-gynecologists and a nurse-midwife to provide instruction during Unit 7.
2. Several psychiatrists to provide instruction during Unit 8.
3. An ophthalmologist to teach the eye exam during Unit 9.

The course faculty will continue to search for opportunities to bring in capable and motivated instructors from various disciplines to participate in course instruction.

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

SUCCESSES

After its first year, the Medical Skills Course has been recognized as a highly successful course. The decision to align the Medical Skills Course session topics with the SPM scheme presentations has produced substantial educational benefits that were not anticipated prior to the beginning of the program. Because each Medical Skills session builds directly on content from the prior week of SPM, students have been able to demonstrate sophisticated clinical decision-making quite early in their medical training, and repeat this week after week during the curriculum.

In essence, the Medical Skills Course and SPM have developed educational synergism, with each course reinforcing the other. SPM lays down a foundation of declarative knowledge, organized within the conceptual framework of a common clinical presentation. Following this, the Medical Skills Course provides an opportunity to apply this knowledge in a simulated but highly relevant situation. Then over the weekend, students review the content that has been covered in SPM in order to prepare for the formative exam. Many students comment that after the Medical Skills experience, they view the content from SPM differently, and use the context from the standardized patient encounter to help them reframe and reorganize the basic science content.

A second success in the course has come from the decision to maintain close linkage between instruction and student assessment. Prior to each session, detailed preparatory materials are distributed that provide a step-by-step walk-through of the SP encounter. These materials outline the tasks that must be accomplished during the encounter, the questions that need to be asked, the physical findings that should be sought, and the communication skills that should be demonstrated. During summative OSCE evaluations the very same questions, exam findings, and communication skills are used as assessment criteria. Medical students have expressed appreciation for the clarity of the course expectations, and this has engendered an atmosphere of trust during the sessions and examinations. Ultimately, this has had the effect of promoting learning.

***REQUIRED COURSE FORM (Continued)***

| | |
|---|---|
| ***Course title:*** | ***Medical Skills I,II, III & IV*** |

PROBLEMS TO OVERCOME

Naturally, there have been problems, too. As the course was developed during the year, there were many times when instructional materials and SP cases were written days before the sessions were actually presented. Not unusually, materials were posted on the student website one or two days prior to the session. Feedback from the medical students clearly indicates that they need these materials further in advance of the sessions, and the course director is working hard to develop materials well ahead of the sessions.

Each SP encounter is videotaped, and medical students are invited to come to the Clinical Simulation Center to review their videotapes. However, only a relatively small number of students have actually availed themselves of the opportunity to review their videotapes. Indeed, both students and faculty members are busy, and it is easy to let these reviews slip by. In the future, a schedule will be developed and posted, so that a number of medical students will be assigned an appointment to review their videotapes with a faculty member. In addition, a small panel of faculty members will be recruited to perform these time-intensive video reviews in order to share the burden of this workload.

| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Society, Community, and the Individual |
| **Sponsoring department or unit:** | Department of Medical Education |
| **Name of course director(s):** | Ana Maria Arroyave, MD, MPH, Theresa Byrd, Dr. PH |

***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 | 6 |
| Department of Family Medicine | 14* |
| Department of Biomedical Sciences | 2 |
| Department of Obstetrics and Gynecology | 1 |
| Department of Emergency Medicine | 2 |
| Department of Pediatrics | 11** |
| Department of Internal Medicine | 1 |
| UTHSC Houston School of Public Health (El Paso) | 2 |

Notes: *This count includes 10 clinical faculty members who precept students in community clinic sites. Clinical preceptor faculty all have faculty appointments at PLFSOM.

**These are clinical faculty who precept students in community clinic sites. These faculty have appointments at the PLFSOM.

## Course Objectives

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

| | | | |
|---|---|---|---|
| **Yes** | **x** | **No** | |

***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

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

medical Spanish. As part of this course, students participate in community assessment projects, home visits with "mentor" families in the community, and they are also 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 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).

The overall course goals include the following:

- Students will acquire an understanding of biostatistical concepts required to critically evaluate the medical literature and practice evidence-based medicine;
- Students will understand modern epidemiological principles for assessing disease processes within populations and know how to apply this knowledge in practice;
- Students will appreciate the role of culturally based beliefs, attitudes, and values in affecting the health and illness behaviors of individuals, groups, and communities;
- Students will understand the concept of community and of systems within communities that impact health seeking behaviors and responses to treatment interventions;
- Students will recognize variations in family structures, organization, values, and expectations as these influence health and illness-related behaviors;
- 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.
- Students will acquire (or expand upon existing) skills in conversational and medical Spanish.

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

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

## 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?*

Residents, Fellows, and Graduate Students do not participate in the delivery of this course.

### *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.*

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 El Paso County. 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 site. This group meets at least quarterly and as needed to discuss the program goals and objectives, logistics, and to solve problems. These dinner meetings are well attended.
2) The course director and senior associate dean for medical education conducted orientation meetings with the clinical faculty and staff at each of the community clinic sites.
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 that is used by the course director to determine whether there are problems with student attitudes or conduct that need to be addressed.

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

## Student Evaluation

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

| **Year:** | n/a | n/a | n/a |
|---|---|---|---|
| **Score:** | | | |

NBME subject exams are not used in this course.

***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 | x | Problem-solving written exercises |
| | Essay questions or papers | x | Presentations |
| | Oral exams | x | Preceptor ratings |
| | OSCE or standardized patient exam | | Other (describe) |

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

There are no practice examinations given in this course. This course is delivered primarily through short intersessions (approximately 2 days per intersession) between each of the units of the Scientific Principles of Medicine course (please see curriculum schematic, page x). Students are given short quizzes (20-25 items) that are aggregated over the course of the semester to serve as a component of the final grade. Students are well aware of their progress. Students who do not do well 75% or higher and are at risk for not passing the course meet individually with the course director who then directs the student to appropriate faculty for additional help. For written exercises related to the community clinic placement and for projects (e.g., mentor family home visits) the course director reads and provides feedback to the students. A passing grade in this P/F course requires that the student pass all components of the course. Students whose work is unsatisfactory in any given component is provided feedback and required to redo the assignment or to take a remedial examination.

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

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

| | | | |
|---|---|---|---|
| **Yes** | **x** | **No** | |

Narrative feedback is provided by the course director on written exercises and projects and by preceptors and staff members working with the student in the community clinic placement.

**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 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). If problems have been identified by student evaluations or other data, describe how they are being addressed.***

The charter class of 2013 was asked to complete an anonymous electronic survey regarding their experiences in SCI to date in October, 2009. This survey covered the 3 week mini-immersion experience in Border language, culture, and community (July 13-30, 2009) and the first SCI intersession following the completion of Unit 1 (Host-Defense) in the Scientific Principles of Medicine course. Twenty nine of a possible 39 students submitted responses for a response rate of 74.4%.

Overall the students rated the course moderately well during this time frame with a majority of the respondents agreeing or strongly agreeing that the course was:

- Well organized (69%)
- Clear learning objectives (62%)
- Reasonable expectations (69%)
- Appropriate instructional methods (55%)
- Fair methods of evaluation (58%)
- Relevant to the practice of medicine (62%)
- Provided useful information (55%)

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

Free text responses revealed the following student perceived strengths:

- Class material is relevant, helpful, and interesting
- Many students value the emphasis being placed on cultural and linguistic competency (see also comments under course weaknesses and suggestions for change)
- Clinical and community experiences are valuable

Weaknesses and suggestions for change identified in free-text responses:

- Some students feel too much emphasis is being placed on Mexican-American culture and would like the course to provide more exposure to other cultural groups in the El Paso area; others felt too much emphasis was being placed on cultural topics
- Many students commented on a perceived mismatch between published learning objectives and quiz items
- Some students questioned value and efficacy of intermittent instruction in conversational Spanish and requested a greater emphasis on medical Spanish
- Some students found the mentor family home visits to be stressful and worried about this component being intrusive for the families
- Several students questioned the scheduling of the SCI course as intersessions following the stress of a major unit exam. By this point they noted they were fatigued and found it difficult to motivate themselves for SCI

A second anonymous survey was completed by 34/39 students (87% response rate) at the end of the academic year. The results of this survey are summarized below showing the percentage of students agreeing with the survey statements.

- Well organized (41%)
- Clear learning objectives (68%)
- Reasonable expectations (69%)
- Appropriate instructional methods (44%)
- Fair methods of evaluation (56%)
- Relevant to the practice of medicine (53%)
- Provided useful information (64%)
- Additional Questions on end of year course evaluation:
- Community clinic experience worthwhile (94%)
- Host/Mentor experience worthwhile (26.4%)
- Spanish instruction worthwhile (70.6%)

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

Free text comments revealed the following student perceived strengths of the course:

- The community clinic experience was identified by many students as a major course strength
- A number of students commented on the value of Spanish and appreciated the transition from an emphasis on conversational Spanish to Medical Spanish.

Weaknesses and suggestions for change identified in free text responses:

- Consistent with survey results reported above, many students expressed dissatisfaction with the family home visit experience. They cited issues related to scheduling difficulties, feeling that the experience was intrusive and time consuming.
- Several students continued to question the value of intermittent instruction in SCI through the intersession scheduling model. This was particularly problematic for Spanish instruction and epidemiology.
- Some students commented that instruction on environmental and occupational health was overly repetitious.

RESPONSES TO STUDENT EVALUATIONS:

- Course director met with the committee that designed the mentor family experience in order to revise objectives, address logistical issues and students' concerns. Recommendations included to reduce the number of visits to one visit during the second year. This visit will be done with the help and support of a community health worker . The main objectives of this visit will be to get to know the families by drawing a genogram and doing a home assessment.
- Course directors made a proposal to integrate SCI content into SPM schedule in order to facilitate the learning of Spanish and Epidemiology, thus, ending the intersession schedule. This proposal was approved by the Curriculum and Educational Policy Committee for implementation in 2010-2011.
- The medical Spanish will be taught more often and will mirror what is being taught in other courses to facilitate learning and application of the new vocabulary
- Course directors have met with thread directors to provide individual feedback from the students and to discuss ideas for improvement
- Course directors have met with thread directors in order to shift from lecture time to interactive sessions
- Course directors have met with thread directors in order to encourage inclusion of objectives in each session that demonstrate applicability of SCI content to clinical medicine

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

SUCCESSES:

- Community clinic experience

| **Course title:** | ***Society, Community, and the Individual*** |
|---|---|

- Many students engaged with community projects: i.e., education to women victims of domestic violence in health related topics, participation in community health fairs, food & coat drives during the winter
- Some students published some articles in local journals regarding their community clinic experience
- The participation of the mentor families and their perceived benefit of the family mentor program
- The participation of community organizations and physicians across the border (physicians from New Mexico)

PROBLEMS/CHALLENGES TO OVERCOME:

- Attendance dropped considerably (50%) during second semester
- Family experience: Real logistic problems scheduling visits (10%), sense general resistance to complete this activity. To address this problem : Activity will be moved to the second year, limited to one general visit with a promotora with a family who is established in the community
- Conceptual threads: revision of objectives, target some objectives to clinical applicability, shift lecture time to small group activities (application exercises), end the intersession schedule.
- Community clinics: Attrition of preceptors in the community, we may want to consider some compensation/ recognition of their time. Recommend face to face contact and monthly feedback with course director for first and second year medical students.
- Professionalism: To be evaluated as part of the core competencies. During the fall of 2010, we started collecting information on professionalism from small group activities as well.

| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Scientific Principles of Medicine Unit 6: Renal/Endocrine Systems |
| **Sponsoring department or unit:** | Internal Medicine, Medical Education |
| **Name of course director:** | Stephen Sandroni, MD/Amy Trott, 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** |
|---|---|
| Internal Medicine (General, Nephrology, Endocrinology) | 8 |
| Medical Education (Anatomy, Biochemistry, Cell Biology, Physiology, Pharmacology, Microbiology) | 8 |
| Pediatrics | 1 |
| Pathology | 4 |
| Radiology | 1 |
| College Masters | 4 |

## Course Objectives

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

| | | | |
|---|---|---|---|
| **Yes** | **X** | **No** | |

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

This course focuses fluids, electrolytes, homeostatic mechanisms, and the role of the kidney in the process of regulation. The course also deals with glucose, lipids, intermediary metabolism of these entities, and the disease processes associated with their abnormalities. Other endocrine disorders and their anatomic and pathophysiologic bases are also be considered. 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. The major clinical emphasis is on adult conditions, but pediatric renal and endocrine conditions are also presented.

| **Course title:** | ***SPM Unit 6: Renal/Endocrine Systems*** |
|---|---|

Instruction in the related basic sciences will enable the student to understand better the clinical presentation. Gross and microscopic anatomy is integrated with the gross and microscopic anatomical pathology of the renal and endocrine system and is also correlated with radiographic anatomy. Renal and endocrine systems are emphasized as model homeostatic systems. This requires basic science presentations in related biochemistry and physiology. Microbiological and immunological aspects of these organ systems are considered. Management concerns including appropriate pharmacology are discussed.

The 12 clinical presentation modules that will serve as the framework for the course include:

1. Abnormalities of Renal Function
2. Disorders of Serum Sodium
3. Intrinsic Renal Disease
4. Abnormalities of Hydrogen Ion Concentration
5. Renal Failure: Acute Kidney Injury
6. Renal Failure: Chronic Renal Disease
7. Hypertension
8. Hypothalamus, Pituitary, and Adrenal Axis
9. Disorders of Thyroid Function
10. Weight gain and Obesity
11. Diabetes and Hyperlipidemia
12. Male Genitourinary disorders and reproduction (Self-Study Module)

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 will be 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 will be provided along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation will provide the basis for discussion of each of the basic science principles including underlying anatomic, biochemical, and patho-physiological concepts.

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

## Preparation for Teaching

***If graduate students, postdoctoral fellows in the biomedical sciences, or residents teach in the course (as lecturers, small group facilitators, laboratory instructors), describe how they are informed about the course objectives and prepared for their teaching role.***

Graduate students, postdoctoral fellows in the biomedical sciences, and residents will not teach in this course as lecturers, small group facilitators, or laboratory instructors.

| **Course title:** | ***SPM Unit 6: Renal/Endocrine Systems*** |
|---|---|

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

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

*For additional information about individual course structure within the Scientific Principles of Medicine series, see Section II: ED-5 and ED-11.*

***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?***

Not applicable.

***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 unit of instruction is offered at a single site on 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 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 | | Presentations |
| | Oral exams | | Preceptor ratings |
| | OSCE or standardized patient exam | | Other (describe) |

| **Course title:** | ***SPM Unit 6: Renal/Endocrine Systems*** |
|---|---|

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

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** | **X** | **No** | |
|---|---|---|---|

## 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 coruse drawing faculty from different departments in the Paul L Foster School of Medicine. The basic science faulty 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 will assist in the clinical integration.

There is ample teaching space available for the course, including a sufficient number of small 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). If problems have been identified by student evaluations or other data, describe how they are being addressed.***

This unit will be offered for the first time in the fall of 2010.

| Course title: | *SPM Unit 6: Renal/Endocrine Systems* |
|---|---|

Topic Appendix: Renal/Endocrine Unit

## 1. ANATOMY / HISTOLOGY / EMBRYOLOGY

### Renal

- Urinary system
- Visual anatomy
- Radiological anatomy
- Embryological development of the urogenital system
- Histology of kidneys and urinary tract

### Endocrine

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

### Renal

- Renal metabolism
- Filtration, and renal disease
- Hormonal regulation of salt and water balance

| Course title: | *SPM Unit 6: Renal/Endocrine Systems* |
|---|---|

**Endocrine**

- 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

**Renal**

- Renal disease of genetic origin

**Endocrine**

- Genetic disorders of endocrine function

## 4. MICROBIOLOGY/IMMUNOLOGY

**Renal**

- Urinary tract infections
- Sexually transmitted diseases
- Bacteriology and parasitology
- Herpes simplex virus II and cytomegalovirus
- Human papovaviruses
- Transplantation, tumor immunity and immunotherapy

**Endocrine**

- Immune modulators of pancreatic islets
- Thyroid and immune function

| Course title: | *SPM Unit 6: Renal/Endocrine Systems* |
|---|---|

## 5. NUTRITION

### Renal

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

### Endocrine

- 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

### Renal

- Kidney
- Lower urinary tract

### Endocrine

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

## 7. PHARMACOLOGY

### Renal

- 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

| Course title: | *SPM Unit 6: Renal/Endocrine Systems* |
|---|---|

- Cancer chemotherapy
- Penicillins and cephalosporins
- Aminoglycosides
- Tetracyclines, azithromycin and erythromicin
- Sulfonamides, trimethoprim and quinolones
- Urinary antiseptics
- Anti-schistosomal drugs

- Gout and purine metabolism
- Immunosuppressive agents

**Endocrine**

- 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

**Renal**

- Renal function, glomerular filtration and renal blood flow.
- Solute and water transport along the nephron
- Transport and regulation of potassium balance
- Urine concentration and dilution
- Regulation of acid base balance
- Integration of salt and water balance
- Renal pathophysiological conditions

**Endocrine**

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

| **Course title:** | ***SPM Unit 6: Renal/Endocrine Systems*** |
|---|---|

- 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

| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Scientific Principles of Medicine: Unit 7 - Reproduction |
| **Sponsoring department or unit:** | Obstetrics/Gynecology<br>Medical Education |
| **Name of course director:** | Sanja Kupesic Plavsic, MD, PhD; Elmus Beale, PhD; Martine Coue, PhD; Bhargavi Patham, 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** |
|---|---|
| Obstetrics/Gynecology | 4 |
| Medical Education (Anatomy, Embryology, Biochemistry, Cell Biology, Physiology, Genetics, Pharmacology, Microbiology, Immunology) | 11 |
| Pathology | 1 |
| Radiology | 1 |
| College Masters | 4 |

## Course Objectives

***Are there written objectives for the course?***

| | | | |
|---|---|---|---|
| **Yes** | **X** | **No** | |

There are 12 individual clinical presentation modules that constitute the course. Each of these modules has written clinical and basic science educational objectives that are included in the syllabus devoted to the module. These educational objectives are available for review on site.

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

This course focuses on human reproduction, pregnancy, and illnesses associated with the female genital tract and the breast. 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). The 12 clinical presentation modules include the following:

1. Abnormal menstrual cycle, including amenorrhea, oligomenorrhea, dysmenorrhea and the pre-menstrual syndrome
2. Infertility
3. Contraception
4. Menopause
5. Uterine prolapse and pelvic floor relaxation
6. Screening (Pap smear, disorders of the breast including masses, pain, abnormal discharge, and galactorrhea)
7. Vaginal discharge and sexually transmitted diseases
8. Abnormal genital tract bleeding
9. Pelvic mass
10. Pelvic pain, both acute and chronic
11. Pregnancy including ante-partum care, the intra-partum, and post-partum care; obstetrical emergencies and complications, non-reassuring fetal status, pregnancy-associated hypertension
12. Pregnancy loss

Physical signs and symptoms associated with a particular disease process 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 each of the basic science principles including underlying anatomic, biochemical, and pathophysiological concepts. Basic science learning objectives are covered for each clinical presentation. Broad examples of the basic science topics covered in this course follow. These objectives will be thoroughly reviewed as to depth, breadth, and sequencing by the basic science faculty who will deliver the basic science component of the curriculum. Examples of the basic science content addressed in this unit of SPM is listed in the topic appendix at the end of this course description.

Course Title ***SPM Unit 7: Reproduction***

## 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?***

***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 course will be taught at only one site, the campus of the Paul L. Foster School of Medicine, Texas Tech University in El Paso, TX.

## 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 |

Course Title ***SPM Unit 7: Reproduction***

***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 | | Presentations |
| | Oral exams | | Preceptor ratings |
| | OSCE or standardized patient exam | | Other (describe) |

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

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?***

| | | | |
|---|---|---|---|
| **Yes** | **X** | | **No** |

## 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 coruse drawing faculty from different departments in the Paul L Foster School of Medicine. The basic science faulty and many of the clinical faculty teaching in the course are members of the Medical Education Department. Other clinical faculty members from the Departments of Obstetrics and Gynecology, Surgery, Radiology and Pathology will assist in the clinical integration. We have sufficient numbers of faculty with the expertise needed to deliver this unit of instruction.

There is ample teaching space available for the course, including a sufficient number of small 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). If problems have been identified by student evaluations or other data, describe how they are being addressed.***

This unit of the Scientific Principles of Medicine Course will be offered for the first time beginning on October 18, 2010. Student evaluation data will not be available until early December 2010.

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

**SUCCESSES IN THE REPRODUCTION COURSE**

- This unit of SPM is fully developed and is ready for implementation in late October, 2010
- There has been a high level of involvement among basic science faculty, the unit directors, and members of the Department of OB-GYN in the development of this course
- IT support enabled the development of a compendium of informatics resources, including a Medical Image Library and other applications for the delivery of content
- Additional successes will be identified after the completion of this unit and will be provided to the survey team at the time of their visit in February, 2011.

**CHALLENGES AND PROBLEMS TO BE OVERCOME**

- One of the challenges in Unit 7 will be to assure the effective interaction between the Obstetrics and Gynecology Department clinical affiliates, Medical Education Department faculty and Paul L. Foster School of Medicine administration.
- Additional challenges will be identified after course implementation and will be provided to the survey team at the time of their visit in February, 2011.

## Topic Appendix: Reproductive Unit

### 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 gentialia
  - 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
  - Oögenesis and comparisons with spermato/spermiogenesis
  - 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
  - Mullerian 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
  - Partuition, 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 ands 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
- Metastatic disease and 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

| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Scientific Principles of Medicine: The Mind and Human Development |
| **Sponsoring department or unit:** | Psychiatry, Pediatrics, Medical Education |
| **Name of course director:** | David Briones, MD, Pilarita Cortez, MD, Richard Brower, MD Tania Arana, PhD Robert Suskind, 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** |
|---|---|
| Pediatrics (General, Neonatology, Developmental, Psychiatry) | 9 |
| Psychiatry | 3 |
| Geriatric Medicine | 1 |
| Medical Education (Anatomy [gross, neuroanatomy, embryology], Biochemistry, Genetics, Histology, Immunology, Microbiology, Neuroscience, Pathology, Pharmacology, Physiology, Clinician Medical Educators) | 15 |
| College Masters | 4 |

## Course Objectives

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

| | | | |
|---|---|---|---|
| **Yes** | **X** | **No** | |

This course is consists of 16 separate clinical presentation modules. Each module has its own set of written educational objectives. These written objectives are incorporated into the syllabus that accompanies each module. All of these written objectives are available for review on site.

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

This is a complex course that will include a wide range of topics. The course transitions logically from the preceding course on obstetrics, and spans the life cycle beginning with birth and infancy and concluding with clinical presentations that pertain primarily to elderly patients. Across the lifespan, the course deals with the individual and family, social issues impacting health, and behavioral and thought disorders. The topics are developed as two overlapping predominantly pediatric/predominantly adult developmental and life cycle components. This course includes the following clinical presentations:

1. Fetal distress
2. Prematurity

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

3. Depressed newborn
4. Sudden infant death syndrome
5. Pediatric emergencies
6. Developmental disorders / delay
7. Attention deficit/hyperactivity in children
8. Failure to thrive (pediatric and geriatric presentations)
9. Falls in the elderly
10. Mood disorders
11. Panic and anxiety
12. Psychotic patient / disordered thought
13. Substance abuse and drug addiction
14. Dementia
15. Sleep disorders (apnea / insomnia / circadian rhythm)
16. Oral health and oral presentations of systemic disorders

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. The scientific underpinnings will be explored for each clinical presentation, including a brief definition and a statement of its clinical significance. A list of the potential causes for the presentation will be provided along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation will provide the basis for discussion of each of the basic science principles, including underlying anatomic, biochemical, and patho-physiological concepts.

Each clinical presentation will thus include a set of clinical and basic science learning objectives related to relevant anatomy (including gross, microscopic, and medical imaging components), biochemistry, physiology, genetics, immunology, microbiology, nutrition, pharmacology, and pathology. Basic science faculty will participate in this component of the instructional process. Gross anatomy and microscopic anatomy laboratories will provide the anatomical framework, along with selective diagnostic tests and imaging correlations provided by a members of the expert clinical faculty. Other discipline experts will provide instruction using various teaching methods including lectures, laboratories, computer simulations and small group discussions. Deliberate practice exercises will utilize “process worksheets” and “worked examples” in the small group and team-based tutorial sessions

Masters from all of the colleges will participate in both the instructional and evaluation components of the course. The masters will guide students’ examination of ethical and professional aspects related to human development and mental health that are not rooted in basic science, including the topics of death and dying (end-of-life planning/palliative care), family violence (rape, child/spousal/elder abuse, self-harm/suicidality).

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

Each major component of the course will be overseen by course directors from the pertinent pediatrics, psychiatry or geriatric medicine clinical faculty, partnered with a member of the Medical Educator faculty.

Broad examples of the medical science topics that will be covered in this course are included in the Topic Appendix at the end of this course description. A full listing of more specific course objectives is provided in the accompanying CD. These objectives will be thoroughly reviewed as to depth, breadth, and sequencing by the basic science medical educator and clinical medical educator faculty who have been recruited to deliver an integrated and clinically relevant basic science curriculum.

## 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?***

***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 course will be 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 two classes:***

| | | | |
|---|---|---|---|
| **Year:** | NA | NA | NA |
| **Score:** | NA | NA | NA |

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

***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 | | Presentations |
| | Oral exams | | Preceptor ratings |
| | OSCE or standardized patient exam | | Other (describe) |

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

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** | **X** | **No** | |
|---|---|---|---|

## 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 unit of the Scientific Principles of Medicine course will be offered during the second year of the curriculum. The unit is taught as an interdisciplinary offering drawing faculty from a number of departments. Because of the complexity of the unit, a large number of faculty members have been drawn from a number of disciplines, both clinical and basic science. We believe that we have committed sufficient clinical expertise to deliver this component of the curriculum. We anticipate that we will have a full complement of medical educators in time to refine the curriculum, prepare educational materials and to provide active instruction when the charter class reaches the second year.

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

There is a diversity of teaching space available for the course, including a sufficient number of small 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). If problems have been identified by student evaluations or other data, describe how they are being addressed.***

This component of the curriculum will be offered for the first time during the second semester of the MS 2 year. Evaluation data will not be available until early March 2011.

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

**SUCCESSES**

High level of participation by basic science and clinical faculty in the departments of Medical Education, Pediatrics, and Psychiatry in developing a highly integrated and clinically relevant curriculum.

**CHALLENGES/PROBLEMS**

The number of clinical presentations assigned to this unit will be difficult to cover in the amount of time originally allotted to this presentation. In response, the unit committee in collaboration with the course director and course committee were able to negotiate additional time by slight reductions in Units 6, 7, and 9. These changes were reviewed with the Curriculum and Educational Policy Committee and it approved these changes.

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

## Topic Appendix: Mind and Human Development

### 1. BEHAVIORAL SCIENCE

- Characterization and assessment of human behavior
  - Development
  - Psychological assessment
  - Personality
  - Learning and memory
- Established disorders of human behavior
  - Stress and coping mechanisms
  - Personality disorders
  - Anxiety disorders
  - Mood (affective) disorders
  - Attention disorders and disruptive behavior in children
  - Disorders of thought: schizophrenia
  - Dementia and delirium
- 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
  - Abuse of psychoactive substances
- Addiction

### 2. BIOCHEMISTRY

- Metabolic activity of the brain and central nervous system
- Glucose and carbohydrates
- Lipids and myelin

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

- Serotonin and neuroactive transmitters
- Biochemical mechanisms in degenerative diseases
- Alzheimer disease
- Amyloidosis
- Multiple sclerosis
- Prion diseases

**3. GENETICS**

- Aspects of behavioral genetics

**4. NUTRITION**

- Older adults & lifetime exposure
- Nutritional rehabilitation

**5. PHARMACOLOGY (USES, MECHANISMS OF ACTION, PHARMACOKINETICS, ADVERSE EFFECTS)**

- Tocolytics
- Surfactants
- Glucocorticosteroids
- Stimulant drugs
- Cholinergic drugs
- Anticholinergic drugs
- Indirect-acting sympathomimetic agents
- Indirect-acting sympatholytic agents
- Serotonergic drugs
- Dopamine antagonists
- Drugs used to treat affective disorders
- Antipsychotic agents
- Sedatives, hypnotics and anxiolytics
- Drugs of abuse
- Drugs for erectile dysfunction
- Drugs used in dementias
- Antiepileptic drugs
- Prescribing CNS drugs for the elderly
- Adverse oral effects of drugs used to treat systemic disease

**6. PHYSIOLOGY**

- Lung maturation

| **Course title:** | ***SPM Unit 8: The Mind and Human Development*** |
|---|---|

- Auditory and vestibular systems
- Chemical senses

**Motivational systems**

- Hypothalamus
- Emotion

**Higher functions**

- Association cortices
- Language and aphasias
- Learning and memory
- Sleep and dreaming

| PART B. REQUIRED COURSE FORM | |
|---|---|
| **Course title:** | Scientific Principles of Medicine: Unit 9 Special Senses |
| **Sponsoring department or unit:** | Medical Education |
| **Name of course director:** | Basic Science Co-directors: Dale Quest, PhD<br>Clinical Co-directors: Benjamin Burt, M.D. |

***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 (Anatomy, Biochemistry, Cell Biology, Physiology, Pharmacology, Microbiology, Pathology) | 9 |
| Pediatrics | 1 |
| General Surgery | 1 |
| Neurology | 1 |
| Ophthalmology | 1+ 1 private sector adjunct |
| Otorhinolaryngology | 3 private sector adjuncts |
| Internal Medicine: Dermatology | 1+1 private sector adjunct |
| Family Medicine | 1 |
| College Masters | 2-4 |

## Course Objectives

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

| | | | |
|---|---|---|---|
| **Yes** | **X** | **No** | |

This unit is organized into three components: Ophthalmology, Otolaryngology, and Dermatology. There are four clinical presentation modules for each of those components, and each of those has its own set of written clinical, basic science, and behavioral science educational objectives. These objectives will be provided to students in the syllabus for each module and are available for review on site.

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

Content of this course is concentrated in the areas of disorders and abnormalities of the eyes, ears, nose, throat and skin. Each clinical presentation will include a brief definition, a statement of clinical significance and a schematic representation of potential causes (along with "process worksheets" and "worked examples" for small groups). There will also be basic science 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.

| **Course title:** | ***Scientific Principles of Medicine: Unit 9 Special Senses*** |
|---|---|

Content areas to be covered include:

**OPHTHALMOLOGY COMPONENT OF UNIT 9**

1. Visual disturbance and loss
2. Diplopia and strabismus
3. Eye redness

(Structured Self-Study) Pupil abnormalities

4. Eye socket abnormalities

**OTORHINOLARYNGOLOGY COMPONENT OF UNIT 9**

5. Hearing loss, tinnitus
6. Dizziness-vertigo, ear pain
7. Hoarseness, speech abnormalities

(Structured Self-Study) Smell and taste dysfunctions

**DERMATOLOGY COMPONENT OF UNIT 9**

8. Skin lesions: flat (macular), raised(papules, vesicles & plaques), depressed (ulcers), growths (tumors, cysts, & infections)
9. Skin allergic reactions: contact dermatoses/eczema, urticaria/angioedema
10. Hair, nail and pruritic disorders

These clinical presentations has been sequenced and structured so that the concepts developed earlier will provide a foundation for the topics that follow. The basic medical science disciplines are interwoven. Basic information will be 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 will be provided along with a schematic representation of the relationships of those causal entities. This list of causes and the associated schematic representation will provide the basis for discussion of each of the basic science principles including underlying anatomic, biochemical, and pathophysiological concepts.

Thus, each clinical presentation will include a set of basic science 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. Basic science faculty will participate in this component of the instructional process. Gross anatomy, neuroanatomy and microscopic anatomy laboratories will provide the anatomical framework with radiological correlations. Other discipline experts will provide instruction using various teaching methods including lectures, laboratories, and small group discussions.

Broad examples of the basic science topics that will be covered in this unit of the SPM course can be found in the topic appendix at the end of this course description.

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Scientific Principles of Medicine: Unit 9 Special Senses*** |
|---|---|

## 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?***

N/A

***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 course will be 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 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 | | Presentations |
| | Oral exams | | Preceptor ratings |
| | OSCE or standardized patient exam | | Other (describe) |

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

| **Course title:** | ***Scientific Principles of Medicine: Unit 9 Special Senses*** |
|---|---|

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 (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** | **X** | **No** | |

## 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 course is taught as an interdisciplinary course drawing faculty from a number of full-time clinical teaching faculty positions and adjunct clinical faculty, including Surgery, Ophthalmology, Otolaryngology, Internal Medicine, Dermatology and Family Medicine, and the basic science faculty and clinicial medical educators in the Department of Medical Education. These faculty members represent such disciplines as anatomy, physiology, biochemistry, molecular and genetic biology, cell biology, pathology, immunology, and microbiology. We have sufficient faculty to design and implement this integrated unit in the SPM course.

There is a diversity of teaching space available for the course, including a sufficient number of 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). If problems have been identified by student evaluations or other data, describe how they are being addressed.***

This unit of the SPM course will be offered for the first time March through April, 2011. Evaluation data will not be available until early May, 2011.

**REQUIRED COURSE FORM** (Continued)

| **Course title:** | ***Scientific Principles of Medicine: Unit 9 Special Senses*** |
|---|---|

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

**SUCCESSES:**

Multiple complex clinical schemes have been simplified and consolidated to provide a rational clinically oriented framework on which to construct the scientific underpinnings for clinical diagnostic reasoning.

**CHALLENGES AND PROBLEMS:**

Development of the clinical components for Unit 9: clinical schemes, process work sheets, and worked case examples are facilitated by board-certified clinical expertise. At present, there are limited numbers of full time faculty members in ophthalmology, ENT, and dermatology and it will be necessary for us to rely on the services of community based volunteer faculty. Several of these faculty members have indicated they will assist us in the development and presentation of these materials.

| **Course title:** | ***Scientific Principles of Medicine: Unit 9 Special Senses*** |
|---|---|

**Topic Appendix: Special Senses-Dermatology Unit**

## 1. ANATOMY / HISTOLOGY / EMBRYOLOGY

### Gross Anatomy

- Skin
- Face and scalp
- Orbit and oculus
- Tongue and papillae
- Skin and associated tissue
- Vestibular and auditory anatomy
- Larynx
- Radiographic (visual) anatomy (X-rays, CTs, MRIs, etc.)

### Microscopic anatomy

- Nervous tissue
- Eye
- Tongue and papillae

### Embryology

- Development of the nervous system, special senses, & teratology

### Neuroanatomy

- Retina
- Optic chiasm
- Optic tract
- Visual cortex
- Lateral geniculate nucleus
- Taste and Olfaction
- Vestibular apparatus/vestibulocochlear nerve/auditory pathway
- Innervation of the skin

## 2. MICROBIOLOGY/IMMUNOLOGY

- Superficial, cutaneous and subcutaneous fungal infections
- Virulence factors of fungi which infect the skin
- Measles, rubella, HPV-B19

  - Transmission
  - Viral shedding
  - Primary replication
  - Clinical manifestations
  - Viruses and vaccines
- Enteroviruses.
  - Annual cycles
  - Age groups affected
- Herpes viruses (HSV-1, HSV-2, Varicela zoster)
  - Latency
  - Clinical manifestations
  - Primary and recurrent
  - Immune suppressed patients
  - Neonatal herpes
  - Infant risks
  - Rash characteristics of herpes zoster
  - Clinical manifestations of shingles
- HHV-6, -7, -8
  - Infection
  - Manifestations of primary disease
  - Kaposi's sarcoma
- Papovaviruses
  - Host cell DNA synthesis
  - Genera Papovaviridae
  - Associated diseases
  - Diagnosis
- Smallpox
- Molluscum contagiosum

**3. NUTRITION**

- Sensory disorders associated with vitamin deficiency
- Sensory disorders associated with vitamin excess
- Role of nutrition in selected sensory disorders
- Skin and dermatology in diagnosis of nutritional disorders
- Burns, metabolism, and therapeutic adjuncts

| **Course title:** | ***Scientific Principles of Medicine: Unit 9 Special Senses*** |
|---|---|

## 4. PATHOLOGY

- Pupillary and ocular disorders
- Visual pathologies
- Auditory diseases
- Olfactory disorders
- Taste disorders

## 5. PHARMACOLOGY

- Drugs for ophthalmic indications
    - mydriatics and miotics
    - reduce intraocular pressure
    - treat infections
    - treat retinal degenerative disorders
- Drugs for ear, nose and throat infections
- Drugs for diseases of the skin
    - immune reactions: eczema, urticaria, psoriasis
    - infections: bacterial, viral, fungal
    - neoplasms

## 6. PHYSIOLOGY

- Receptor functions of the retina and photo-transduction
- Central visual pathways
- Visual neurophysiology
- Pupillary reflexes and control of eye movements
- Auditory neurophysiology
- Gustatory neurophysiology