

Scholarly Activity and Research Program (SARP)

Quickstart Administration

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SARP...What is it?

SARP is a three-credit, mentor guided, hands-on research experience done while in medical school. It provides medical students with an opportunity to design and execute independent scholarship or research projects under the guidance of faculty mentors. Research topics and research areas available: 1) basic clinical and translational research; 2) epidemiology, community-based, behavioral, public and environmental health; and 3) medical humanities, qualitative research and medical education research. This allows for a project to be tailored to a student's background and interests.

SARP Course Components

SARP I Course 5401 (1 credit)

MS1

CITI Training – **January**
Part A, Mentor & Project –
March
Part B, Project Description –
April

SARP II, Course 6401 (1 Credit)

Final Report – **October**

Track 3 Final Report – March

SARP III, Course 7401(1 Credit)

Poster Presentation – **November**

Track 3 Presentation – April

SARP Completion Tracks

Track 1 – Completion of SARP II and SARP III in **Fall** of MS2 Year

Track 2 – Completion in SARP II and SARP III in **Fall** of MS3 Year

Track 3 – Completion in SARP II and SARP III in **Spring** of MS4 Year

Course Syllabus

Scholarly Activity and Research Program (SARP)

2016 - 17

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Course Description

The Paul L. Foster School of Medicine Scholarly Activity and Research Program (SARP) provides medical students with an opportunity to design and execute independent scholarship or research projects under the guidance of faculty mentors. A wide variety of topics and research areas are available in three broad categories, allowing for a project to be tailored to a student's background and interests: 1) basic clinical and translational research; 2) epidemiology, community-based, behavioral, public and environmental health; and 3) medical humanities, qualitative research and medical education research. All projects must be in compliance with federal and institutional requirements (e.g. IRB and IACUC). IRB approval/exemption will be required.

The overall goal of the SARP program is to engage and educate medical students in the process of addressing a scholarly or research question. This hands-on experience will increase the student's awareness and appreciation of the importance of research in providing the basis for evidence-based medical knowledge. Through this experience students will be exposed to new ideas and attitudes and develop skills that will strengthen their medical training and broaden their perspective about how new knowledge is obtained and disseminated. The SARP experience will encourage students to continue seeking a fuller understanding of biology and disease processes through a scholarly approach that will make them stronger physicians and valued members of the medical community.

The intent of the SARP is to provide this research / scholarship experience during the time as a PLFSOM student. Research or scholarship pursued before matriculating to the PLFSOM cannot be used directly in fulfillment of this requirement. A medical student might continue working on earlier projects, even continuing work with a previous mentor, but clear documentation must be provided explaining how the SARP activities are extensions of any previous work; in particular, sufficient detail must be provided about what work is completed as a PLFSOM student versus previous work.

Students participating in group projects, (where 2 or more students work with a single mentor), should clearly identify a unique hypothesis or research question that can distinguish their contribution and provide for an independent Final Report and poster presentation.

Students can choose between one of three tracks for completing their SARP requirement. Track 1 concentrates execution of the project into the summer between the first and second year with a final report and poster presented in the fall of the second year; whereas Track 2 provides the student more flexibility in the execution of their project with completion with the final report and poster presentation in the fall of the third year. Track

3 is dedicated to completion of the SARP requirement by the spring of year four. Completion of Track 3 in the spring consists of the final report, due in March of year four and the poster presentation is then due in April of that same year. A research elective in year four shall not be used during this time to complete the SARP requirement.

Students on Track 2 or Track 3 are required to submit annual progress reports until their SARP requirement is completed. NOTE: MS4 completion in fall of the fourth year will be considered on a case-by-case basis.

This is a 3-credit program consisting of three 1-credit courses, with one credit awarded for selection of a mentor, preparation of a Project Plan and CITI Training completion, one credit for project execution and final report, and a final credit awarded for the poster presentation. For all tracks, selection of a mentor and preparation of a project plan is due at the end of the first year. Based on this organization, students will register for three courses:

SARP I - Course 5401, (Project Plan Part A and Part B and CITI training completion): registration Spring Semester MS1. To receive a pass for completion of SARP I, student's must submit both Part A and Part B on or before each assigned due date.

The CITI Training course is an online course in human subject protection training. Instructions on accessing the course can be found at:

<http://www.ttuhsu.edu/research/hrpo/irb/edurequirements.aspx>

SARP II - Course 6401, (Project Execution and Final Report): Registration for Track 1, all Year 2; for Track 2, fall of Year 3; and for Track 3, spring of Year 4. To receive a pass for completion of SARP I, student's must submit the final report on or before each assigned due date.

SARP III -Course 7401, (Poster Presentation): the fall of Year 2 or Year 3. For Year 4 you can register for the spring semester ONLY. Credit for completion of SARP III, is received once the student presents their research at the SARP symposium and submits their poster to the SARP Associate Director on the assigned due date.

Thus, the student needs to register for both SARP II and SARP III the same fall semester; for students on Track 3, the spring semester.

If projects involve human subjects and/or animals, the student must show proof of IRB or other ethical oversight compliance for the research. Most cadaver-based research is exempt from IRB approval; however, all students must complete CITI training regardless of nature and subjects of their research project. Final reports and poster presentations

associated with human subjects and/or animals will only be accepted for SARP credit with proof that federal/institutional requirements have been met (e.g., IRB/IACUC approval/exemption as applicable).

Guidelines for SARP I, II and III assignments can be found on the SARP Course page in Canvas. These guidelines are also included in Appendix B.

Course Goals

The overall goals for the SARP course are stated below, with associated PLFSOM Education Program Goals and Objectives* provided in parentheses:

- Students will develop a research question or project theme. (2.6; 8.5)
- Students will learn how to search the literature, to identify previous knowledge and theory that provides the context and relevance for the project. (2.6)
- Students will develop a rationale for their project along with specific aims. (2.6; 8.5)
- Students will develop a plan for the execution of their project that will address the specific aims of the project. (2.6; 8.5)
- Students will choose and employ adequate methods for the acquisition and analysis of data or information and learn about protection of human subjects involved in research. (2.6; 5.2; 8.5)
- Students will demonstrate clear and effective communication skills (oral and written) in the presentation of their project. (4.2)

*A copy of the PLFSOM Education Program Goals and Objectives can be found at: <http://el Paso.ttuhs.c.edu/som/catalog/GoalsObjectives.aspx>.

Students will demonstrate a high level of intellectual and personal integrity in all aspects of their project development, execution and communication. SARP will encompass a wide variety of student projects, and each project will address a subset of the PLFSOM Education Program Goals and Objectives. Among these objectives likely to be addressed are:

KNOWLEDGE

- Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

PATIENT CARE

- Gather essential information about patients and their conditions through history taking, physical examination, and the use of laboratory data, imaging studies, and other tests.
- Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment.

INTERPERSONAL COMMUNICATION SKILLS

- Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds.
- Communicate effectively with colleagues and other health care professionals.

PROFESSIONALISM

- Demonstrate knowledge of and appropriately apply ethical principles pertaining to patient privacy, autonomy and informed consent.
- Demonstrate accountability to patients and fellow members of the health care team.
- Demonstrate and apply knowledge of ethical principles pertaining to health care related business practices and health care administration, including compliance with relevant laws, policies, regulations and the avoidance of conflicts of interest.
- Demonstrate honesty in all professional and academic interactions.
- Meet professional and academic commitments and obligations.

PRACTICE-BASED LEARNING

- Identify and perform learning activities to address gaps in one's knowledge, skills and/or attitudes.
- Demonstrate a basic understanding of quality improvement principles and their application to analyzing and solving problems in patient and/or population-based care.
- Accept and incorporate feedback into practice.
- Locate, appraise and assimilate evidence from scientific studies related to patients' health problems.
- Obtain and utilize information about individual patients, populations or communities to improve care.

SYSTEMS-BASED PRACTICE

- Demonstrate the ability to identify patient access to public, private, commercial and/or community-based resources relevant to patient health and care.
- Incorporate considerations of benefits, risks and costs in patient and/or population care.

INTERPROFESSIONAL COLLABORATION

- Function effectively both as a team leader and team member.
- Recognize and respond appropriately to circumstances involving conflict with other health care professionals and team members.

PERSONAL AND PROFESSIONAL DEVELOPMENT

- Recognize when to take responsibility and when to seek assistance.
- Demonstrate the ability to employ self-initiated learning strategies (problem definition, identification of learning resources and critical appraisal of information) when approaching new challenges, problems or unfamiliar situations.

Education Methods and Learning Experiences

The SARP experience is focused on the student – mentor relationship. The expectation is that once a good match has been made, the mentor/expert will guide the student in the Project Plan preparation, as well as during the execution and presentation phases. A PLFSOM faculty member will review each assigned component (Project Plan, Progress Reports/Final report and Poster presentation) and provide the student with formative feedback. The criteria for judging these assignments will reflect the ability of the student to attain the course goals as outlined above.

Sessions provided through the Master’s Colloquium, Society, Community and the Individual (SCI) and Scientific Principles of Medicine courses(SPM), will introduce the students to ethics in research and the relationship between hypothesis-driven research and evidence-based medicine.

Course Policies and Procedures

SARP Orientation is mandatory – unexcused absence will result in a comment in the Professionalism Summary Assessment.

Attendance at additional SARP sessions will be monitored and is highly encouraged as important information about the program as well as training will be provided at these meetings. Students are especially encouraged to RSVP to attend lunch meetings during which potential mentors will present their research interests and available SARP projects.

Please note: during Year 4, a Research Elective block cannot be used to fulfill the basic SARP requirements, as this would constitute ‘double-dipping’ of academic credits.

Proposals for international research as fulfillment of the SARP requirements must be received by the SARP co-directors on or before February 1 of each year.

Assessment and Grading

SARP courses are Pass/Fail and grades are determined by the submission of assignments on time and satisfactory faculty review. SARP assignments (Part B for SARP I and the Final Report for SARP II) will be evaluated by a PLFSOM faculty reviewer, who is not the student’s mentor, to provide formative feedback to the students using a rubric that will assess each of the course goals (rubric included in Appendix A). Students will be asked to revise their report if judged unsatisfactory. Revised reports will then be reviewed by the SARP Co-Directors.

For SARP III, a poster is presented at a SARP Symposium and is reviewed and judged by a panel of 3 faculty (grading rubric for poster judging is in the Appendix A).

For all SARP assignments, unsatisfactory performance reflected in the associated assessment rubric, will need to be addressed by the student with revision and resubmission of the assignment.

Professionalism Summary Assessment (PSA) will be submitted by the SARP Co-Directors for each student at the end of each fall semester until all SARP requirements are satisfactorily completed.

- The PSA rubric can be found on the SARP Course page on CANVAS and is also in the Appendix A.
- PSA rubrics will be posted in the student's e-Portfolio and provided to the student's college master for overall professionalism evaluation. All SARP deadlines need to be respected as they determine course grades. Deadlines and assignments are available on the SARP Course page on CANVAS. These deadlines include:
 - Completion and submission of Project Plan (Part A, Part B) and satisfactory completion of CITI Training (SARP I).
 - Completion and submission of Progress Reports for Tracks 2 & 3.
 - Completion and submission of a Final Report (SARP II).
 - Poster Presentation at a SARP Symposium. An electronic poster file should be submitted to the SARP Associate Director on or before the SARP Symposium. The final grade will only be released after this file is received. (SARP III).

Excuses for not respecting SARP deadlines should be submitted to the Office of Student Affairs. The SARP Co-Directors along with the Office of Student Affairs will determine if a deadline extension is warranted.

- Any unexcused missed deadline will be reported on the student Professionalism Summary Assessment (PSA) rubric and documented in the student's e-Portfolio. The student will be notified via email of the missed deadline, and will be given a 5-day extension and new deadline date in that same email.

- An excused missed deadline will trigger an automatic 5-day extension (or longer if circumstances warrant), but will have no impact on the student's Professionalism Summary Assessment (PSA) rubric.
- Two unexcused missed deadlines within a single SARP course will result in a failing grade for that course recorded on the student transcript. A remediation process will include discussion with the student and satisfactory completion of the original assignment as determined by the SARP Co-Directors.

Scholarly Integrity

Students engaged in the *Scholarly Activity and Research Program* should demonstrate a high level of intellectual and personal integrity in all aspect of their project development, execution and communication. Students are expected to:

- Give fair and accurate credit to individuals who may have contributed to the results and interpretation presented in your paper (could be done in an acknowledgement paragraph at the end of the paper).
- Use proper citation for attributing quotes, previous work, concept and ideas.
- Write your own reports and do not engage in plagiarism.

Appendix A – Grading Rubrics

SARP Project Plan Part-B Evaluation rubric

SARP Final Report Evaluation

SARP Poster Rubric

SARP Mentor Experience Evaluation

SARP Professionalism Summary Assessment (PSA)

SARP Project Plan Part-B Evaluation Rubric

Instructions for Reviewer: Please use the following category descriptors to give the student feedback on the quality of his/her project plans (highlight or circle the appropriate statements). This matrix is meant to provide the student with a feel for how well they did relative to both their peers and your expectations for a project at this stage of their career. Few students are expected to meet the level of exemplary.

Criterion	Unacceptable	Acceptable	Exemplary
Research Question or Project Theme	The project is poorly specified and/or is completely specified by the faculty advisor with no development or contribution by the student.	The student has identified a general project suggested by faculty advisor.	The student has independently identified and developed a project.
Literature Review	The information lacks relevance, quality, depth and balance. All sources are from secondary sources.	The literature review uses a variety of sources.	The literature review is consistent with an experienced scholar (integrated, high quality, scholarly sources).
Rationale & Specific Aims	The logic underlying the project is incorrect, poorly explained, or missing entirely. No clear Specific Aims addressing the question are provided.	Project Rationale and Specific Aims are a logical extension of the literature review.	Project Rationale and Specific Aims are a logical extension of the literature review. Specific Aims are focused and likely to answer the research/project question.
Project Design	The project design is not clearly derived from the Specific Aims. Methodology is inadequate for answering the question.	The project design is derived from the Specific Aims. Methodology is adequate to meet the aims. As appropriate, the design includes sampling, independent and dependent variable(s).	The project design is sophisticated and at a level consistent with an experienced scholar.
Analysis Plan	The analysis plan is absent, or inappropriate for the project.	The analysis plan contains sufficient details and is appropriate for the project.	The analysis plan is at a level consistent with an experienced scholar (very clearly detailed and appropriate for the project).
Writing	Writing is poorly organized and difficult to follow. There are significant spelling and grammatical errors (the reader may wonder if the author bothered to proof read his/her work).	Writing is organized. There are some minor grammatical and spelling problems.	Writing is at a level consistent with an experienced scholar.
Integrity	The student has not demonstrated adequate intellectual and/or personal integrity.		The student has demonstrated adequate intellectual and/or personal integrity.
If Project Involves Human Subjects what is IRB Status?	Approved	Pending/Ongoing	Unknown
			Project Does Not Involve Human Subjects

COMMENTS for the scholar (please continue on another page if you need more space):

SARP FINAL REPORT EVALUATION

Instructions for Reviewer: Please use the following category descriptors to give the student feedback on the quality of his/her project. Highlight or circle the appropriate statements for each criterion. This matrix is meant to provide the student with a feel for how well they did relative to both their peers and your expectations for a project at this stage of their career. Few students are expected to meet the level of exemplary. Additional written feedbacks below the rubric or on a separate page would be greatly appreciated!

Criterion	Unacceptable	Acceptable	Exemplary
Research Question or Project Theme	The project is poorly developed. Research question is not stated	The student contributed to the development of project suggested by faculty advisor. Research question is stated.	The student has independently identified and developed a project. Research question is well defined and clearly stated
Literature Review	The information is not relevant or of poor quality.	Literature review is organized and integrated but lacks a critical analysis. Literature sources are mostly secondary with a few highly relevant primary sources.	The literature review is at a level consistent with an experienced scholar. The review is integrated, organized, and includes a critical analysis of the literature.
Rationale & Specific Aims	The logic underlying the project is incorrect, poorly explained, or missing entirely. The Specific Aims do not address the research/project question	The Specific Aims are a logical extension of the literature review.	The Specific Aims are a logical extension of the literature review and theory. Specific Aims are focused and able to answer the research/project question.
Project Design	The Project Design is not clearly derived from the Aims or will not address the Specific Aims.	The Project Design is derived from the Specific Aims and is appropriate. When required, the design includes sampling, independent and dependent variable(s).	The Project Design is at a level consistent with an experienced scholar.
Analysis	The analysis is inadequate.	The analysis contains sufficient detail and is appropriate for the project.	The analysis is at a level consistent with an experienced scholar (very clearly detailed and appropriate for the project).
Writing	Writing is poorly organized and difficult to follow. Lack of proof reading is a significant issue.	Writing is organized with few grammatical and spelling problems.	Writing is at a level consistent with an experienced scholar. Writing is clear and organized. Few grammatical issues.
Integrity	The student has not demonstrated adequate intellectual and/or personal integrity.	The student has demonstrated adequate intellectual and personal integrity.	

COMMENTS for the student (please continue on another page if you need more space):

Poster Rubric	Notes	Needs	Fair	Good	Excellent	Outstanding
Project Title: "Place Title here"						
Appearance						
1. Poster attracts viewer's attention.						
2. Poster is easy to read from an appropriate distance (3-5 feet).						
3. Poster is well organized and easy to follow.						
4. Graphics and other visuals enhance presentation and convey message effectively.						
5. Poster is neat and appealing to look at.						
Content						
1. Title is catchy and reflects poster content.						
2. Research/scholarly question is clearly stated.						
3. Context and significance of the question is demonstrated.						
4. Materials and methods are clear and concise and appropriate for the question.						
5. Results are easily interpreted.						
6. Conclusions are clear and supported by results.						
Presentation and Communication Style						
1. Ability to describe the key elements of the research/scholarly question						
2. Ability to relate results back to big-picture context						
3. Ability to demonstrate knowledge of subject matter and project						
4. Ability to answer questions precisely, succinctly and accurately						
Total Score						

SARP MENTOR EXPERIENCE EVALUATION

Please use the following category descriptors to give the student feedback on his/her participation and attitude while executing their SARP project under your guidance.

Criterion	Unacceptable	Acceptable	N/A
Student Project Execution	Start Date		End Date
Effort	Does not put in effort to complete tasks.	Makes a substantial effort to complete task	Unable to Assess
Reliable	Does not always follow-through with tasks	Follows through with tasks	Unable to Assess
Teamwork	Not a team player does not participate in team efforts, does not listen to or help others.	Good team member, contributes to the group effort, listens to others, helps others	Unable to Assess
Respectful	Observed behavior is not always respectful of others	Consistently behaves respectfully to others	Unable to Assess
Accepts Criticism	Rejects constructive criticism	Accepts constructive criticism	Unable to Assess

Describe the student's behaviors that resulted in your ratings on effort, reliability, teamwork, respect, and acceptance of criticism.

Describe the student's development of self-directed learning skills during this project (independence, quality of hypotheses, identification of sources of information, ability to find high quality literature, ownership of the project, etc.).

Professionalism Summary Assessment
Scholarly Activity and Research Program

Student name: _____

Date: _____

Professionalism Objectives	Assessment
<p>1) Demonstrate sensitivity, compassion, integrity and respect for all people</p> <p>Student demonstrates respect for all persons involved with their SARP project.</p>	Needs improvement, Pass, Commendable
<p>(2) Demonstrate knowledge of and appropriately apply ethical principles pertaining to patient privacy, autonomy and informed consent.</p> <p>Student is knowledgeable about all federal and institutional requirements relevant to their SARP project (e.g., IRB and IACUC).</p>	Needs improvement, Pass, Commendable
<p>(3) Demonstrate honesty in all professional and academic interactions.</p> <p>Student will be transparent and honest in all activities relating to the execution of and reporting on their SARP project.</p>	Needs improvement, Pass, Commendable
<p>(4) Meet professional and academic commitments and obligations.</p> <p>Student meets all program deadlines and is accountable for all commitments related to their SARP project.</p>	Needs improvement, Pass, Commendable
<p>Please provide comments related to the above Professionalism assessment (if none, please enter NA)</p>	

Appendix B: Guidelines

Project Plan Part B Guidelines

Final Report Guidelines

Poster Guidelines

In order to streamline the SARP project planning submission process, The *Project Plan Part B* form is a Word document linked to Canvas to be attached and submitted in the Assignments section of Canvas.

This form must be submitted by the due date in order to receive credit for this portion of the SARP requirement. All submissions MUST be done in Canvas. The submission date will be determined by when the assignment form is received in Canvas.

Part B Points of Emphasis

First, the Project Plan needs to be authored by you, representing original work. Of course, discussions with your mentor are encouraged and your mentor's input is important, but you need to take ownership of the Project Plan and are responsible for its content.

Second, 'group' projects are certainly allowed (where 2 or more students work with a single mentor). However, each individual student should clearly identify a unique hypothesis or research question that can distinguish their contribution and provide for an independent Final Report and poster presentation.

Finally, the intent of the SARP is to provide research / scholarship experience during your time as a PLFSOM student. Research or scholarship pursued before matriculating to the PLFSOM cannot be used directly in fulfillment of the SARP requirement. Of course, you might continue working on earlier projects, even continuing work with a previous mentor, but you must document clearly how your SARP activities are extensions of any previous work; in particular, you need to provide sufficient detail about what work is completed as a PLFSOM student versus previous work.

Project Narrative

Please provide a narrative description of your SARP project including the following (keeping the total length to 2 pages). Discuss this with your mentor and have them proofread the finalized Part B.

Research Project Question/Theme - This should tell the reader what the project is about.

Literature Review - This is a focused review of information relative to your project question/theme. It is not intended to include all the existing literature. Instead, discuss the body of ideas that you used to frame your project. All cited work should be directly relevant to your research theme or question.

Rationale & Specific Aims - Your literature review should also help to provide a rationale and significance to your project (why the question is being explored and how important it is). Further, the literature should help you form a set of specific aims; i.e., what are the set of aims/goals that you hope to achieve. If applicable, generating and stating a hypothesis will help you define your specific aims.

Project Design - This is a detailed description of how you intend to achieve the specific aims. In a scholarly paper, this is the methods section. It must be detailed enough to determine whether the project can accomplish the goal.

Analysis - This section describes the methods you will use to analyze your data. For basic research and many community/epidemiology projects, this could include a description of the statistical methods and a discussion of other quantitative and/or qualitative data. For some community/epidemiology or medical humanities/ethics projects, this may involve a different type of analysis. For example a creative medical humanities project could use a reflective analysis.

Your project Plan Part B will be evaluated by two faculty members using an evaluation rubric posted on the SARP website. Before you start, we strongly recommend that you read the evaluation rubric. Be sure to seek advice from your mentor on project planning and obtain feedback on early drafts and final product.

References

- Provide citations for all ideas, concepts, text, and data that are not your own using the American Medical Association Style guidelines available at:

http://www.pugetsound.edu/files/resources/4244_AMA_Color.pdf

- All references cited in the text must be listed in a References Cited list.

Finally, do not forget to edit your report:

- Proof read your report.
- Check your spelling.
- Make sure that you use complete sentences.
- Check your grammar: punctuation, sentence structure, subject-verb agreement (plural or singular), tense consistency, etc.
- Give it to your mentor or others to review.

Integrity issues

Students engaged in the *Scholarly Activity and Research Program* should demonstrate a high level of intellectual and personal integrity in all aspect of their project development, execution and communication. Students are expected to:

- Give fair and accurate credit to individuals who may have contributed to the results and interpretation presented in your paper (could be done in an acknowledgement paragraph at the end of the paper).
- Use proper citation for attributing quotes, previous work, concept and ideas.
- Write your own reports and do not engage in plagiarism.

Goal:

The student will demonstrate clear and effective written communication skills in the presentation of their final report for the project. The student should be able to clearly communicate the aims and relevance along with data analysis for their project.

The final report must be written by the student and include a clear description of the student's contribution to the project.

Students participating in group projects (where 2 or more students work with a single mentor) should clearly identify a unique hypothesis or research question that can distinguish their individual contribution and provide an independent Final Report and Poster Presentation.

A manuscript submitted as the Final Report is only acceptable if the student wrote the manuscript, and this is verifiable with the student's mentor.

Final Report Contents

Your final report should be in the form of a scholarly paper and should not exceed 15 pages (not including references). Your report should include the following elements:

- **Title page**
- **Abstract**
- **Introduction**
- **Material and Methods**
- **Results**
- **Discussion/Conclusion**
- **References**
- **Description of your Contribution to the Project**

Your Final Report will be evaluated by members of the PLFSOM Faculty using an evaluation rubric posted on the SARP website. Before you start writing your report, we strongly recommend that you examine the evaluation rubric and the information provided below on how to write a research paper. Finally, seek advice from your mentor on how to write your report and seek feedback on early drafts and the final product.

The following link is to a compilation entitled “*How to Write Your Thesis*” by Kim Kastens, Stephanie Pfirman, Martin Stute, Bill Hahn, Dallas Abbott, and Chris Scholz. Look this over for useful guidance on how to prepare your Final Report (which, of course, will be much shorter than a thesis!):

http://www.ideo.columbia.edu/~martins/sen_sem/thesis_org.html

Your Final Report should contain the following standard items:

Title page

Your title page should include the following:

- Project title
- Author (you)
- Institution
- Date of delivery
- Research mentor
- Mentor's institution

Abstract

- A good abstract explains in a few lines why the paper is important and provides a summary of your major results. The final sentences explain the major implications of your work. The abstract should be concise, readable, and informative.
- Length should be ~ 1-2 paragraphs (~ 400 words).
- Abstracts generally do not have citations.
- Try to answer the following questions in the abstract:
 1. What did you do?
 2. Why did you do it? What question were you trying to answer?
 3. How did you do it? State the methods used.
 4. What did you learn? State the major results.
 5. Why does it matter? Point out at least one significant implication of the work.

Introduction

Start with a statement that motivates the reader and emphasizes how interesting and important the area or problem is that your project and Final Report addresses.

Next, provide a focused review of the literature covering current understanding of the question or research citing primary sources and important contributions. Discuss the theoretical framework or body of ideas that were useful to frame your research question. All cited work should be directly relevant to your research theme or question. This should not be an extensive review of the field, but a concise summary of the most relevant literature. This literature review should logically lead to a rationale and significance for your question (why the question is important and how you are addressing it). Once you have framed the question, clearly define the specific aims of your project; i.e., what are the set of aims/goals that you hope to achieve, and in general terms how you will address these aims (overview of the project design – details of methods will be emphasized in the execution plan presented in the Results section). If applicable, stating a hypothesis will help define the specific aims.

Methods The Methods section should address the following questions:

- What were the details of the methods you used in the execution of your project?
- Could another researcher accurately replicate the study?
- Is there enough information provided about any instruments or techniques used such that another researcher could repeat individual experiments?
- If materials or reagents were created, do other researchers have access to these or can others regenerated them?
- Could another researcher replicate any laboratory analyses that were used?
- Could another researcher replicate any statistical analyses?

Citations in this section should be limited to data sources and references of where to find more complete descriptions of procedures. Do not include descriptions of results here.

Results Break up your results into logical segments by using subheadings. For each subsection, start with a short description of what you did (e.g., an individual experiment or replicates of an experiment) and the results you obtained.

- The results are actual statements of observations, including statistics, tables and graphs.
- Mention negative results as well as positive results. Do not interpret results in the Results section – (save interpretation for the Discussion).
- Lay out the case as for a jury: present sufficient detail so that others can draw their own inferences and construct their own explanations.

Discussion/Conclusion

Start with a few sentences that summarize the most important results. The Discussion section should be a brief essay in itself, answering the following questions and caveats:

- What are the major patterns in the observations?
- What are the relationships, trends and generalizations among the results?
- What are the exceptions to these patterns or generalizations?
- What are the likely causes (mechanisms) underlying these patterns and resulting predictions?
- Is there agreement or disagreement with previous work?
- Interpret results in terms of the background laid out in the introduction: what is the relationship of the present results to the original question?
- What is the implication of the present results for other unanswered questions?

Multiple hypotheses: there are usually several possible explanations for results. Be careful to consider all of these rather than simply pushing your favorite one. If you can eliminate all but one, that is great; but often this is not possible with the data in hand. In this case you should give fair treatment to the remaining possibilities, and try to indicate ways in which future work may lead to discrimination of these alternatives.

- What are the things we now know or understand that we didn't know or understand before the present work?
- What is the significance of the present results: why should we care?

This section should be rich in references to similar work and background needed to interpret results.

In the conclusion, refer back to the research question or hypothesis posed and describe the conclusions that you reached from carrying out the investigation. Include the broader implications of your results and do not simply repeat the abstract, introduction or discussion. Finally, if applicable include some recommendations such as:

- Further research indicated to fill in gaps in understanding.
- Directions for future investigations on this or related topics.

References

- Cite all ideas, concepts, text, and data that are not your own using the American Medical Association Style - available at:

<http://med.fsu.edu/userFiles/file/AmericanMedicalAssociationStyleJAMA.pdf>

All references cited in the text must be listed in a References Cited list.

Description of your Contribution to the Project

Outline your specific contribution to the project in terms of (but not limited to):

- Project design
- Project execution/Data collection
- Data Analysis/ Interpretation

For those whose scholarly project falls within the realm of the creative medical humanities, you are expected to attach a copy of the creative work.

Finally, do not forget to edit your report:

- Work with your mentor!
- Proof read your report.
- Check your spelling.
- Make sure that you use complete sentences.

Check your grammar: punctuation, sentence structure, subject-verb agreement (plural or singular), tense consistency, etc.

Scholarly Integrity

Students engaged in the *Scholarly Activity and Research Program* should demonstrate a high level of intellectual and personal integrity in all aspects of their project development, execution and communication. Students are expected to:

- Give fair and accurate credit to individuals who may have contributed to the results and interpretation presented in your paper (could be done in an acknowledgement paragraph at the end of the paper).
- Use proper citations for attributing quotes, previous work, concept and ideas.
- Do not omit or fabricate data and results.

Write your own report and do not engage in plagiarism. The final report needs to be authored by you, representing original work. Of course, discussions with your mentor are encouraged and your mentor's input is important, but you need to take ownership of the final report and are responsible for its content.

Goal:

The student will demonstrate clear and effective communication skills (oral and written) in the presentation of their project poster. The student is responsible for the design and preparation of the poster.

Printing Services

TTUHSC has in-house printing services. Therefore, take your poster file, as an Adobe PDF file, on a thumb drive to Raul de la Cruz, Lead Media Producer, Office of Institutional Advancement, 1414 N. Oregon St. El Paso, Texas 79902. His office phone number is 915-215-4575, cell 915.276.0110 and email is raul.de-la-cruz@ttuhsc.edu.

Morning hours before 10am are generally the best time to drop off poster files, but call or email in advance to be sure. Please provide a 1 -2 week lead time for Mr. de la Cruz to ensure that your poster is printed in time for the SARP Symposium. Posters will NOT be delivered to campus.

Poster Design

Use PowerPoint to prepare your poster. Step by Step Instructions on ***How to Make a Poster Using PowerPoint*** can be found on the University of Washington website at:

http://depts.washington.edu/uwposter/print/Howto_Powerpoint007_10_24_08.pdf

Or <http://www.emich.edu/apc/guides/apcposterpowerpoint2010.pdf>

Be sure to set the poster file dimensions 48 inches wide x 36 inches high (landscape setting). We are flexible on the size but do not go over 60 inches wide x 40 inches high (landscape setting).

Once your document is formatted in PowerPoint to your specifications, save the file as a pdf document and review it to make sure that the fonts have transferred accurately.

Poster Content

Your poster should include the following:

- The title of your project, your name, your affiliation (PLFSOM), your sponsor's name, and his/her department. Use the entire horizontal length of the poster to display this information.
- A short introduction/background/significance paragraph for the project.
- A brief description of the methodology.
- Graphics and images to depict the main project results.
- A summary/conclusion section which stresses the significance and impact of your project findings.
- For those completing Creative Medical Humanities projects, at least one copy of the creative medium should be available for individuals to review.

Formatting tips:

- Use headings as opportunities to summarize your work in large letters (be bold and explicit).
- A hurried reader should be able to get the main points from the headings alone.
- Use brief figure legends which describe methods.
- Minimize the text; a poster is mostly a visual medium.
- Use different font sizes (no less than 24 for text and 36 for headings) to organize and prioritize your message.
- Consider using a column format to make your poster easier to read in a crowd.
- Do not overload your poster, use white space creatively to help define the flow of information.

Additional advice on how to create an effective poster can be found on a site created by *George Hess, Kathryn Tosney and Leon Liegel*:

<http://www.ncsu.edu/project/posters>