

Research Track Goals and Learning Objectives

Research Track Goals

1. Graduates will have the knowledge, attitudes, and skills to be lifelong, self-directed learners.
2. Foster student development of an identity as a physician capable of being involved with and completing research efforts
3. Graduates will acquire the knowledge and skills to successfully complete the components of a research project including:
 - a. Identification of a health care related scientific questions
 - b. Participation in data collection and analysis
 - c. Oral dissemination of scientific information
 - d. Written dissemination of scientific information

Phase I

Phase I Goals

1. Students will identify a mentor and establish a research mentor-mentee relationship.
2. Students will develop a well-defined mentored research project and timeline for completion.
3. Students will have basic skills in the use of scientific article citation management

Learning Objectives

Orientation Session

1. Describe the overall goals and structure of the Research Track
2. Discuss the relationship between the Research Track and MSA requirements

Research Forum

1. Describe and assess the components of a scientific research poster using an established rubric.

EndNote training Session

1. Discuss the utility of using citation manager programs in research.
2. Demonstrate the basic skills of utilizing a specific citation manager program:
EndNote

Individualized Research Experience

1. Develop a relationship with a scientific mentor
2. Review scientific literature pertinent to the individual research project.
3. Identify skills that are needed to carry out components of the individual research project.
4. Begin training to master the identified skills needed to carry out components of the individual research project.

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5. Identify whether the research project needs approval from oversight bodies (i.e. COMIRB, Institutional Animal Care and Use Committee) and develop a plan (if needed) to obtain approval.

Summer between Phase I and Phase II

Summer Goals:

1. Demonstrate progress towards the completion of research project
2. Publicly communicate understanding of the project to the mentor, research team and peers.
3. Describe the components of responsible conduct of research

Summer Learning Objectives

Summer Orientation

1. Describe the overall expectations and structure of the summer experience in the Research Track
2. Describe basic components of an oral scientific presentation

Work in Progress (WIP) Session 1:

1. Present WIP to peers and faculty in an oral presentation
2. Effectively respond to comments and questions from peers about your research efforts
3. Identify scientific questions in other student's presentations.
4. Identify strengths and weaknesses in project presentations by others.

Responsible Conduct of Research Session 1:

1. Describe what is meant by ethics and responsible conduct of research
2. Identify potential conflicts of interest in research.
3. Describe 3 ways to minimize conflicts of interest in research.

Responsible Conduct of Research Session 2:

1. Discuss ethical issues in animal research.
2. Describe at least three examples of ethical issues in human research
3. Describe ethical issues in genetic research

Responsible Conduct of Research Session 3:

1. Describe ethical issues related to scientific collaboration
2. Describe ethical issues related to ownership and sharing of data
3. Describe ethical issues related to the mentoring process
4. Describe ethical issues related to authorship

Individualized Research Experience

1. Regularly meet with a scientific mentor
2. Gain any necessary skills needed for data collection.

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3. Begin data collection appropriate to the individualized research project

Phase II

Phase II Goals:

1. Demonstrate progress towards the completion of your research project
2. Publicly communicate understanding of the project to others

Phase II Learning Objectives

Work in Progress Session 2:

1. Present WIP to peers and faculty in an oral presentation
2. Effectively respond to comments and questions from peers about your research efforts
3. Identify scientific questions when others present
4. Identify strengths and weaknesses in presentations by others.

Work in Progress Session 3:

1. Present WIP to peers and faculty in an oral presentation
2. Effectively respond to comments and questions from peers about your research efforts
3. Identify scientific questions when others present
4. Identify strengths and weaknesses in presentations by others
5. Describe the basic skills for the creation of research (abstracts)

Work in Progress Session 4:

1. Present WIP to peers and faculty in an oral presentation
2. Effectively respond to comments and questions from peers about your research efforts
3. Identify scientific questions when others present
4. Identify strengths and weaknesses in presentations by others

Work in Progress Session 5:

1. Present WIP to peers and faculty in an oral presentation
2. Effectively respond to comments and questions from peers about your research efforts
3. Identify scientific questions when others present
4. Identify strengths and weaknesses in presentations by others
5. Describe the basic skills for the creation of of research posters

School of Medicine Research Forum

1. Create a research poster describing your research question, methods, results and conclusions.
2. Present research to peers and faculty in a combined oral presentation (poster format)

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3. Effectively respond to comments and questions from peers and faculty about your research

Registration and Travel Meeting

1. Describe the university rules and processes for travel to scientific meetings.
2. Describe the process for submission of abstract to a national scientific meeting

Western Student Medical Research Forum

1. Deliver an oral presentation of the individual research project (oral podium or poster) to peers and faculty
2. Effectively respond to comments and questions from peers and faculty about your research

Research Presentation to Faculty

1. Deliver an oral presentation about the individual research project to faculty
2. Effectively respond to comments and questions from faculty about your research

Learning Objectives Individualized Research Experience

1. Meet regularly with a scientific mentor
2. Discuss successes and challenges of the research project with the mentor and/or research team.
3. Advance your progress toward completion of a research project

Phase III

Phase III Goals:

1. Describe the goals and structure for Phase IV of the Research Track
2. Describe the relationship between the Research Track and MSA requirements

Learning Objectives

Research Track Session 1

1. Describe the goals and structure for Phase IV of the Research Track
2. Describe the relationship between the Research Track and MSA requirements

Learning Objectives-Research Forum

1. Describe and assess the components of a scientific research poster using an established rubric.

Phase IV

Phase IV Goals:

1. Students will identify themselves as future physicians capable of completing research projects
2. Develop intermediate skills in presentation of research
3. Obtain skills in written dissemination of research

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Phase IV Learning Objectives

Research Track Session 1

1. Describe the goals and structure for Phase IV of the Research Track
2. Describe the relationship between the Research Track and MSA requirements
3. Identify a national scientific meeting for abstract submission

Objective Research Track Session 2

1. Describe the strengths and weaknesses of the Research Track program

Learning Objectives Presentation at a National Scientific Meeting

1. Present research to scientific peers
2. Effectively respond to comments and questions from scientific peers about your research

Learning Objectives Final Paper

1. Describe and analyze the results of your research project
2. Critically evaluate your research project work in light of relevant evidence and describe how it contributes to relevant fields of scholarship
3. Identify areas for improvement, further study and exploration related to your research project
4. Revise and rewrite the paper integrating feedback from mentors and co-authors
5. Submit the final research paper to peer reviewed scientific journal by December 1 of Phase IV.

Learning Objectives Capstone

1. Assess the components of a scholarly poster using MSA rubric
2. Describe the value of participating in activities which improve the culture for research in a medical academic setting.