Program Learning Outcomes Department of Physics and Astronomy PhD program

GSLG #1: *Understand, interpret, shape, and augment the knowledge base.*

Students will develop:

- depth and breadth of expertise in knowledge and skills expected of professional physicists, as well as the (inter)relationship between subfields of physics.
- ability to engage in effective scholarship in the field by gaining the ability to plan, conduct, and perform in-depth analysis of research activities in physics.
- ability to communicate intellectual merit and broader impacts of research and scholarship

Satisfied by:

- Successful completion of broad and comprehensive course work
    - Problem solving through assignments, exams, presentations, reports
- Satisfactory or better progress demonstrated by semester or yearly Thesis committee meetings and progress reports
- Successful defense of thesis proposal (required for advancement to Candidacy) and dissertation

GSLG #2: *Share disciplinary expertise openly, effectively, and accurately.*

Students shall demonstrate ability to communicate effectively as physicists/scientists

- develop the ability to distill sophisticated and specialized concepts for broader audiences within the discipline
- develop the ability to write and present scientific reports
- develop the ability to deliver oral presentations about physics content

Satisfied by:

- Committee meetings resulting in satisfactory or better Progress Reports
- Student choosing 5 key research papers to support Project Proposal and provide to Review Committee
- Prepare written proposal in NSF/NIH or other appropriate format
- Present and defend proposal resulting in Admission to Candidacy

SLG #3: *Demonstrate responsible and ethical skilled practice.*

- Students will adopt the professional standards of the scientific research community and maintain professional [and ethical] conduct in the conception and communication of physics activities, including ensuring the integrity of data, analysis, and presentation of results, and treating students and colleagues in an ethical fashion.

Satisfied by:

- Successful completion of responsible conduct of research course and/or relevant (web-based) training

- Progress reports demonstrating regular committee meetings and commentary on professional responsibility
- Thesis proposal & defense / group meetings / dissertation

Program Learning Outcomes Department of Physics and Astronomy Master of Science in Physics program

GSLG #1: *Understand, interpret, shape, and augment the knowledge base.*

Students will develop:

- depth and breadth of expertise in knowledge and skills expected of professional physicists, as well as the (inter)relationship between subfields of physics.
- ability to engage in effective scholarship in the field by gaining the ability to plan, conduct, and perform in-depth analysis of research activities in physics.
- ability to communicate intellectual merit and broader impacts of research and scholarship

Satisfied by:

- Successful completion of broad and comprehensive course work
    - Problem solving through assignments, exams, presentations, reports
- Satisfactory or better progress demonstrated by semester or yearly Thesis committee meetings and progress reports
- Successful defense of thesis

GSLG #2: *Share disciplinary expertise openly, effectively, and accurately.*

Students shall demonstrate ability to communicate effectively as physicists/scientists

- develop the ability to distill sophisticated and specialized concepts for broader audiences within the discipline
- develop the ability to write and present scientific reports
- develop the ability to deliver oral presentations about physics content

Satisfied by:

- Committee meetings resulting in satisfactory or better Progress Report
- Present and defend thesis

SLG #3: *Demonstrate responsible and ethical skilled practice.*

- Students will adopt the professional standards of the scientific research community and maintain professional [and ethical] conduct in the conception and communication of physics activities, including ensuring the integrity of data, analysis, and presentation of results, and treating students and colleagues in an ethical fashion.

Satisfied by:

- Successful completion of responsible conduct of research course and/or relevant (web-based) training
- Progress reports demonstrating regular committee meetings and commentary on professional responsibility
- Thesis defense

Program Learning Outcomes Department of Physics and Astronomy Master of Science in Engineering Physics program

GSLG #1: *Understand, interpret, shape, and augment the knowledge base.*

Students will develop:

- depth and breadth of expertise in knowledge and skills expected of professional physicists with core knowledge in an area of engineering, as well as the (inter)relationship between physics and engineering.

Satisfied by:

- Successful completion of broad and comprehensive course work
    - Problem solving through assignments, exams, presentations, reports
- Satisfactory or better progress demonstrated by semester or yearly Thesis committee meetings and progress reports

GSLG #2: *Share disciplinary expertise openly, effectively, and accurately.*

Students shall demonstrate ability to communicate effectively as physicists/scientists

- develop the ability to distill sophisticated and specialized concepts for broader audiences within the discipline

  Satisfied by:

- Committee meetings resulting in satisfactory or better Progress Report

SLG #3: *Demonstrate responsible and ethical skilled practice.*

- Students will adopt the professional standards of the scientific research community and maintain professional [and ethical] conduct in the conception and communication of physics activities, including ensuring the integrity of data, analysis, and presentation of results, and treating students and colleagues in an ethical fashion.

Satisfied by:

- Progress reports demonstrating regular committee meetings and commentary on professional responsibility