

PHYSICS

MASTER OF SCIENCE (M.S.)

PROGRAM DESCRIPTION:

The Master of Science (M.S.) in Physics will prepare students for a variety of career paths, including further study leading to the Ph.D. While degree candidates may pursue specialized research foci based on the research expertise of individual faculty members, the most significant goal of the program is to focus on research areas germane to the needs and special resources of the Deep Underground Science and Engineering Laboratory (DUSEL). Examples of specialized research areas connected to DUSEL include nuclear/particle physics and particle astrophysics involving next-generation neutrino detection; double beta-decay, dark matter searches and gravitational wave detection experiments, as well as condensed matter physics concentrating on novel low background radiation materials and devices.

ADMISSION REQUIREMENTS:

Applicants must meet the admission requirements of the Graduate School and specific requirements of the Physics program. Graduate School requirements can be accessed online at www.usd.edu/grad.

To be eligible for the Master of Science in Physics, applicants must:

- Provide a completed application
- Provide three letters of recommendation from parent institution instructors.
- General GRE scores.
- Provide official transcripts from all universities attended (Applicants must have at least 3.0(B) grade point average in their undergraduate work.)
- TOEFL scores (A minimum TOEFL score of 550 (on the paper-based test) or 213 (on the computer-based test) or 79 (on the internet-based test) is required for international students from countries where English is not an official language.)

APPLICATION DEADLINE:

6-8 weeks before classes start

GETTING STARTED:

Prospective graduate students may apply through the Graduate School at www.usd.edu/grad/how-to-apply.cfm.

The Graduate School forwards completed applications to the appropriate academic department for review. The department will then recommend the admission status of the applicant to the Dean of the Graduate School, who will make the final decision on admission.

***Generous graduate stipends and tuition remission are available to qualified candidates.**

NON-DEGREE PURSUANT STATUS:

To experience the University of South Dakota as a non-degree pursuant student, the University offers graduate students the option of learning under a non-degree pursuant classification. Up to nine credit hours earned as a non-degree pursuant student may be applied to a graduate degree from USD at the discretion of the academic department.

Please note: Enrollment in a course does not guarantee acceptance into the program.

Enrolling as a non-degree pursuant student is easy. Simply complete the online registration form at <https://www.usd.edu/cde/registration> during the registration session open to the public.

FOR MORE INFORMATION

For more information, please visit www.usd.edu/grad or contact:

University of South Dakota

Department of Physics

Phone: 605-677-5649

Fax: 605-677-6121

physics@usd.edu

www.usd.edu/physics



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PROGRAM REQUIREMENTS

AVAILABLE OPTIONS FOR DEGREE: A (Thesis) and B (Non-Thesis)

Option A requires a thesis based on research, while Option B substitutes additional coursework and a research paper/project for the thesis requirement. The non-thesis option is deemed appropriate for students who do not require Ph.D. preparation in physics in order to be successful in their careers.

Students should expect that the completion of an M.S. degree will take two academic years of full-time study.

REQUIRED COURSES

| Course | Course Title |
|----------|-----------------------|
| PHYS 751 | Classical Mechanics |
| PHYS 721 | Electrodynamics I |
| PHYS 723 | Electrodynamics II |
| PHYS 771 | Quantum Mechanics I |
| PHYS 773 | Quantum Mechanics II |
| PHYS 743 | Statistical Mechanics |
| PHYS 590 | Graduate Seminar |

ELECTIVE COURSES

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| PHYS 533 | Nuclear and Elementary Particles |
| PHYS 539 | Solid State Physics |
| PHYS 549 | Science of Solids |
| PHYS 569 | Photonics |
| PHYS 581 | Mathematical Physics |
| PHYS 683 | Mathematical Physics II |
| PHYS 691 | Special Problems |
| PHYS 692 | Special Topics |
| PHYS 739 | Advanced Solid State Physics I |
| PHYS 749 | Advanced Solid State Physics II |
| PHYS 775 | Tensors and General Relativity |
| PHYS 775 | Group Theory in Quantum Mechanics |



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