INTEGRATED SCIENCES

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Overview

The Master's program in Integrated Sciences (MIS) is designed to provide a broad-based, content-rich curriculum that integrates knowledge and methods from natural and physical sciences, mathematics, and computer science disciplines. MIS is a 30 semester-hour interdisciplinary program in which students take courses from two or three disciplines, identify a faculty mentor, and complete a Master's project or thesis. The signature aspect of the program is that the capstone experience must truly integrate the interdisciplinary content into a unified program of research.

Specifically, students are required to complete a coherent selection of classes in a minimum of two areas and a maximum of three areas within the disciplines of biology, chemistry, computer science, environmental sciences, geology, mathematics or physics. An interdisciplinary area of study (including but not limited to fields such as biochemistry, biophysics, or computational biology) may also be considered, upon approval by the Program Director. Each student must meet with the Program Director within the first semester of study to create a program goal statement, which is used to guide the development of their individualized curriculum. All classes applied toward the degree must be related to the student's stated program goal and receive prior approval for inclusion in the program of study.

The MIS curriculum is ideal for students interested in bridging the traditional barriers of science disciplines. It is perfect preparation for a broad range of careers that require skills in multiple areas, disciplines, and fields. Students pursuing an undergraduate BS in Physics (http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/physics/physics-pure-applied-physics-option-bs/#degreerequirementstext) from the University of Colorado are also eligible for an accelerated 4+1 program in which they will complete 12 credit hours of their graduate coursework in their undergraduate career and those credits will apply to both degrees.

MIS students are as diverse as our curriculum. Some are already working in a technical environment with an interest in higher-level research activities. Others are educators looking to enhance their proficiency across disciplines that will prepare them for teaching opportunities such as CU Succeed and other concurrent enrollment programs.

Our program is especially attractive to graduating double majors seeking a Master's program that will allow them to further explore their dual interests through graduate school. Health science professionals have used the program to enhance their existing credentials with a Master's degree designed around biochemistry, biophysics, or computational biology, thus increasing their desirability to PhD and MD programs.

Admission Requirements

Admission into the Integrated Sciences program is competitively based. Minimum requirements for an application to be considered are:

- the graduate application form for the University of Colorado Denver, including all application fees
- a statement of purpose specifying why the applicant wishes to be admitted to the program, the applicant's intended primary and secondary disciplines of interest, and their academic and professional goals
- three letters of recommendation from individuals who can speak to the applicant's academic qualifications, of which at least two must be from academic sources
- transcripts from all institutions of higher learning attended by the applicant
- a bachelor's degree from an accredited college or university
- a minimum cumulative undergraduate GPA of 3.0 on a 4.0 scale; however, applicants with an undergraduate GPA below 3.0 may be considered if they have taken the Graduate Record Examination (GRE) and if the scores are forwarded to the program office
- 40 semester hours of undergraduate courses in biology, chemistry, computer science, environmental sciences, geology, mathematics, and/or physics

Possessing the minimum requirements will guarantee that the application is considered. It does not, however, guarantee admission. The admissions committee will select students competitively to create a high-quality and balanced cohort of participants entering the program each year.

Application Deadline

Students are admitted for the spring and fall semesters. Applications are reviewed on a rolling basis. Priority deadlines for completed applications are April 15 for fall admission and October 15 for spring admission.

Physics, BS 4+1, Master of Integrated Sciences, MIS

Students pursuing the 4+1 track must apply and be accepted for participation in the BS/MIS program prior to completion of the BS degree in consultation with both the undergraduate and graduate advisors. Students must complete a 4+1 intent form (http://catalog.ucdenver.edu/cu-denver/graduate/schools-colleges-departments/college-liberal-arts-sciences/integrated-sciences/BMA_form_1_1_.pdf) to formally declare this program, as they work very closely with undergraduate and graduate advisors to ensure they are on track and completing requirements as necessary. Students must apply and be accepted to the Integrated Sciences, MIS during the last semester of their undergraduate career. A maximum of 12 credit hours of graduate

level courses that are applied to the undergraduate degree will apply to the graduate degree.

Programs

- Integrated Sciences, MIS (http://catalog.ucdenver.edu/cu-denver/graduate/schools-colleges-departments/college-liberal-arts-sciences/integrated-sciences/integrated-sciences-mis/)

Master of Integrated Sciences (MINS) Courses

MINS 5000 - Topics (3-4 Credits)
With prior approval by a candidate's advisor, an MIS candidate may enroll in an upper division course in science, computer science, mathematics, and complete additional work for graduate credit. Prereq: MIS candidate with 12 hours of upper division (4000 level) or graduate level work completed. Term offered: fall, spring, summer. Repeatable. Max hours: 8 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 8.
Prereq: MIS candidate with 12 hours of approved coursework completed and Program Director approval.
Typically Offered: Fall, Spring, Summer.

MINS 5200 - Research Methods in Interdisciplinary Science (3 Credits)
This course introduces methods used in interdisciplinary research in the physical and natural sciences, mathematics, and computer science and prepares students for developing research-based Master's project/thesis proposals. Topics include the scientific method and ethics, experimental design, data collection and analysis, literature searches, evaluation of scientific literature, scientific writing, and oral presentation. Prereq: MIS Candidate and Program Director approval (consent required). Term offered: fall. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: MIS Candidate and Program Director approval (consent required).
Typically Offered: Fall.

MINS 5840 - Independent Study (1-3 Credits)
Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS Graduate Academic Services Coordinator for approval. Prereq: MIS Candidate and Program Director approval (consent required). Term offered: fall, spring, summer. Repeatable. Max hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 6.
Prereq: MIS Candidate and Program Director approval (consent required).
Typically Offered: Fall, Spring, Summer.

MINS 5880 - Directed Research (1-3 Credits)
Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS Graduate Academic Services Coordinator for approval. Prereq: MIS Candidate and Program Director approval (consent required). Term offered: fall, spring, summer. Repeatable. Max Hours: 6 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 6.
Prereq: MIS Candidate and Program Director approval (consent required).
Typically Offered: Fall, Spring, Summer.

MINS 5939 - Internship (1-3 Credits)
Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS Graduate Academic Services Coordinator for approval. Prereq: MIS Candidate and Program Director approval (consent required). Term offered: fall, spring, summer. Repeatable. Max hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 3.
Prereq: MIS Candidate and Program Director approval (consent required).
Typically Offered: Fall, Spring, Summer.

MINS 5950 - Master's Thesis (1-4 Credits)
Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS Graduate Academic Services Coordinator for approval. Prereq: MIS Candidate and Program Director approval (consent required). Term offered: fall, spring, summer. Repeatable. Max hours: 6 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 6.
Prereq: MIS Candidate and Program Director approval (consent required).
Additional Information: Report as Full Time.
Typically Offered: Fall, Spring, Summer.

MINS 5960 - Master's Project (1-4 Credits)
Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS Graduate Academic Services Coordinator for approval. Prereq: MIS Candidate and Program Director approval (consent required). Term offered: fall, spring, summer. Repeatable. Max hours: 4 Credits.
Grading Basis: Letter Grade with IP
Repeatable. Max Credits: 4.
Prereq: MIS Candidate and Program Director approval (consent required).
Additional Information: Report as Full Time.
Typically Offered: Fall, Spring, Summer.