



Individualized Degree Program

Center for Individualized Learning

Space Commercialization Minor

Faculty Designed IDP

The degree is offered through the Individualized Degree Program and is not yet a permanent major.

Program Description

This minor will provide a better understanding of commercialized (for profit) operations in near-Earth or space environments and prepare the student for opportunities within the industry.

This multi-disciplinary minor program blends coursework grounded in engineering and physics with coursework that introduces space systems integration and space commercialization (for-profit operations in the space environment). The program is viable for MSU Denver's student population since Colorado is a leader in U.S. space commerce and gross dollars spent in the national aerospace industry.

A unique opportunity in this program is that the student will also:

1. Earn the MSU Denver certificate in Space Commercialization
2. Gain experience in the industry standard AGI Corp Satellite Toolkit orbital dynamics and mission planning simulation system

Faculty Liaison from Key Department:

- Dr. Michael Botyarov, Aviation and Aerospace Sciences

IDP Contact:

- Dr. Sara L. Jackson Shumate, Director of Center for Individualized Learning

Recommended General Studies Coursework

All students must complete the General Studies requirements for their catalog year.

Composition/Written Communication (GT-CO, 6 credits required of all students):

- ENG 1010: Composing Arguments (3)
- ENG 1020: Research & Argument Writing (3)

Math/Quantitative Literacy (GT-MA, 3 credits required of all students):

- Any course that meets requirement (3)

Oral Communications (3 credits required of all students)

- Any course that meets requirement (3)

Historical (GT-HI, 3) credits required of all students

- Any course that meets requirement (3)

Arts and Letters/Humanities (GT-AH, 6 credits required of all students):

- Any combination of courses (6) that meets requirements

Social and Behavioral Sciences (GT-SS, 6 credits required of all students):

- Any combination of courses (6) that meets requirements

Natural and Physical Sciences (GT-SC, 6 credits required of all students):

- Any combination of courses (6) that meets requirements

Global Diversity (3 credits)

- Students may fulfill the Global Diversity requirement by taking approved courses within one of the following categories: Arts and Humanities; Historical; Natural and Physical Sciences; Or Social and Behavioral Sciences

Total of required credits for General Studies: 33

Degree/Graduation Requirements

Ethnic Studies and Social Justice Course (3 credits)

- Students may fulfill this requirement by taking approved courses within one of the following categories: Arts and Humanities; Historical; Natural and Physical Sciences; Or Social and Behavioral Sciences

Senior Experience (3 credits)

- Required of all students in their major (3)

Recommended Coursework for IDP Minor

Total credit hours in IDP:

- Core courses (21 credits)
- Elective courses (0 credits)

Highly Recommended Core Courses 21 credit hours, 15 upper division credit hours

Courses that are critical to the field of study, and which are likely to become required in an eventual curriculum proposal.

- AST 1040 Introduction to Astronomy (3 credits)
- MET 1050 Introduction to Space (3 credits)
- AES 3600 Space Flight Operations I (3 credits)
- AES 4601 Space Flight Operations II (3 credits)
- AES 4602 Aerospace Comm Operations (3 credits)
- AES 4603 Aerospace Ops Sys Anal& Des (3 credits)
- AES 4607 Orbital Mech & Projects Sim* (3 credits)

*AGI Corp. Satellite Toolkit Lab (STK Lab)

Space Commercialization Certificate

Students completing AES 2607, 3600, 4601, 4602, and 4603 (see * in above list) will also earn an MSU Denver certificate in Space Commercialization. This certificate will provide the student with the knowledge to seek opportunities in an important and expanding part of the Colorado and national economy, as well as expand opportunities for those currently employed in the industry.

Total Minor Credits: 21 credit hours, 15 upper division

Total Credits to graduate: 120+ credit hours, 39 upper division