



Course Syllabus: Special Graduate Topics
McCoy College of Science, Mathematics, & Engineering
Fall 2021
GEOS 5082-101

Instructor Contact Information

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Course Description

This course is intended in introducing students with an introduction to Programming with ArcGIS Pro. This Python course, students will introductory level Python skills with ArcGIS Pro to automate geoprocessing tasks. We will look at an overview of the basic programming constructs of Python version 3.4. Students will learn how to create variables, assign data to variables, work with lists, dictionary, and tuples, branch your code with if/else, for, and while statements, work with classes and objects, and other fundamentals.

Required Textbook & Instructional Materials

Programming ArcGIS Pro with Python (Eric Pimpler, Second Edition)

Student Handbook

Refer to: [Student Handbook 2017-18](#)

Course Objectives

- To develop the student's ability to identify roles played by Python programming in Geographical Information Systems (GIS)
- Strengthen students application of GIS applications in tectonic studies

Course Format

- You will learn how to write geoprocessing scripts that manage projects as well as the maps, layers, and tables that are part of the projects.
- You'll learn how to programmatically add and remove layers from a map, update symbology and properties of layers, and much more including working with the new Camera and Bookmark classes.

- You will learn how to work with layouts. In ArcGIS Pro to handle multiple layout views so you will learn how to manage these objects, make programmatic changes to the elements in the layouts, and export or print the layout

Course Assessment and Grading

You will each be assigned presentation dates. You need to select and work on specific projects areas, and then share your project finding and your critical analysis as a 15-minute Power point presentation for your class. During this course we will work on a research project and give a thorough analysis based research data and present your finding.

- Allow 11 minutes for your talk and 3 minutes for questions.

The presentation should be professional and follow the evaluation criteria outlined on D2L. These include:

- Suitable topic
- Simple backgrounds and text
- correct formatting
- Appropriate information
- Proper organization
- Professional form
- An independent and original assessment

Rubric will be on D2L

Note: You may not submit a presentation or paper for a grade in this class that already has been (or will be) submitted for a grade in another course, unless you obtain the explicit written permission of me and the other instructor involved in advance.

Academic Misconduct Policy & Procedures

Academic Dishonesty: MSU is committed to maintaining the highest standards of integrity and ethical conduct. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and altering academic records) will result in an official academic sanction. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript, and being suspended from the University. You have the right to appeal the charge. Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

<https://msutexas.edu/student-life/assets/files/handbook.pdf>.

Evaluation

I will be evaluating your performance on the basis of quality presentation, participation and engagement in the seminar. Expect evaluation methods including

(but not limited to) quizzes, worksheets, exercises, and extensive face-to-face questioning over topics of your choosing. In all cases, I will be looking for your genuine growth as we progress; you need not try to outperform your classmates so much as outperform your previous self. I need to see growth in terms of research.

Table 1. Points allocated to each assignment

Components	%age
Continuous Progress	20
Individual Presentations	60
Engagement/participation	10
Project drafts/Abstracts	10
Total	100

Grading Standards

This class uses the following numerical equivalents for grades:

A = 100-90% | B = 89-80% | C = 79-70% | D = 69-60% | F = 59-0%.

Colloquium Participation & Writing Assignments

To grow as a student and as a professional, you should attend presentations by other knowledgeable authorities as they arise.

The department offers a colloquium with typically three speakers per semester. You need to definitely attend one of these and three other acceptable presentations. Acceptable presentations include:

- Other sessions of our Colloquium
- NTGS or other geo-society luncheons
- Conference presentations (GSA, AAPG)
- Short courses

Every presentation attended, a written summary of the presentation the speaker's name and affiliation, a short synopsis of the presentation, a few sentences on how the presentation related to your prior understanding of the topic, and a few sentences on your personal impressions of the presentation (style, execution, etc...). Each submission should be a third (or better) draft, exceptionally coherent, and free of spelling and grammatical errors.

Participation

Seminar classes rely on interaction and discussion. You will need to be actively involved in each session to receive full credit for participation.

Individual Presentation

You will be asked to give a detailed presentation towards the end of the semester. These may be either on your thesis research or a topic of interest however it should integrating python programming.

Reflections on Ethics.

Your professor would like to believe that ethical behavior is second nature to everyone. Although it is likely true for the members of this course, experience suggests that exposure to ethical guidelines is useful. Another important individual assignment will ask you to evaluate ethical behavior in the science and profession of geology.

Extra Credit:

There will be no extra credit offered for this course. If you are struggling, try harder. If you are still struggling, come see me.

Late Work:

This class has zero room in its schedule for late of anything. You will need to complete all assignments on time. Your time of presentation is not interchangeable.

Attendance

Attendance will count towards your participation grade except for university excused absences. Absenteeism will be addressed on an individual basis, and the professor reserves the right to drop or fail students with poor attendance. However, any excuse (for absence or otherwise) is best when delivered ahead of the absence. Successful completion is a pathway to an estimable career path that generally weeds out those without commitment and courtesy. It is discourteous to not alert your professor to a delay or absence to any scheduled assembly. Certainly, oversleeping is not an excusable absence.

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is part of this course. Each student is expected to be familiar with this program as it provides the primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor. Zoom presentations might be done online so be familiar with zoom and D2L.

Covid-19 Pandemic

The SARS-Cov2 virus is a threat to the execution of this class. We will replicate conditions that have been useful to healthcare workers.

Rules:

- Stay home if you or anyone in your immediate dwelling is ill.
- You must pass a daily self-assessment whenever you engage in non-remote work – reporting the absence of fever or other symptoms.
- Wash hands for 20 seconds whenever possible. Use hand sanitizer at least once per hour.
- Maintain 6 feet distance when possible.
- Masks are to be worn whenever in close proximity or in closed spaces.
- wear a mask indoors in public settings regardless of vaccination status, which is consistent with the current CDC recommendations. Wearing a mask protects you, and helps protect those around you who may be more vulnerable. This is a simple way we can look out for all members of the Cowboy family.
- Maintain a same sitting in the lecture hall

Information on the face covers can be found on: <https://msutexas.edu/return-to-campus/assets/files/msu-texas-facial-covering-requirement.pdf>

COVID-19 Accommodations

Students may apply through; <https://msutexas.edu/student-life/disability/covid/student-concerns.php>

Student Handbook

There is no reference book for this course, Refer to: [Student Handbook 2017-18](#)
Academic Misconduct Policy & Procedures:

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

Change of Schedule:

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Important Dates:

Last Day to drop this course with a grade of "W" is 4pm, October 25, 2021 Drops after this date will receive grades of "F." Refer to academic calendar: [Drops, Withdrawals & Void](#)

Refund and Repayment Policy:

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students With Disabilities:

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

College Policies:

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Smoking/Tobacco Policy:

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy:

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Grade Appeal Process:

Students who wish to appeal a grade should consult the Midwestern State University [Undergraduate Catalog](#)

GEOS 6001-201 Course Schedule

We meet each Thursday at 11:00 AM-12:00 PM, except during gazetted University holidays. This is done only when needed to get an update and structure the way forward.

Important due dates and other requirements will be imparted as the semester progresses. Changes in the course syllabus, format, assignments, and schedule may be made at the discretion of the instructor.

Course Modules

- Module 1: Introduction to Version 3.4 of the Python Programming Language
- Module 2: Introduction to using Arcpy in ArcGIS Pro
- Module 3: Error Handling and Trouble Shooting
- Module 4: Using the Arcpy Mapping Module to Manage Projects, Maps, and Layers
- Module 5: Managing Layouts with the Arcpy Mapping Module
- Module 6: Automating Map Production and Printing
- Module 7: Updating and Fixing Data Sources
- Module 8: Querying and Selecting Data
- Module 9: Using the Arcpy Data Access Module
- Module 10: Creating Custom Geoprocessing Tools
- Final projecting using Python in an ArcGIS data