MME 1205 - Graphics CRN: 24220 Spring 2022

INSTRUCTIONAL TEAM

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COURSE DESCRIPTION

MME 1205 (Graphics) is a required 2-credit course (1 hours of lecture and 3 lab hours). Three broad topics will be covered in this class:
1) An introduction to the Python programming language
2) Applications of Python programming to problems that are unique to Metallurgical, Materials and Biomedical Engineering (MMBME) including numerical analysis of experimental data, quantitative image analysis and basic statistical analysis of material response
3) An introduction to digital manufacturing and engineering drawing software using Solidworks
4) Time permitting: elementary applications of finite element analysis within Solidworks

The goal of this course is to establish a foundation for numerical analysis, digital manufacturing and computational methods that can be carried forward throughout the rest of the MMBME curriculum.

DAILY SCHEDULE

Day	Time	Description
Mon	11:59 pm	Reading assessment due on blackboard
Tues	12:00-12:50 pm	Lecture
Tues	1:30-4:30 pm	Laboratory session with hands on assignments and applications of Python and Solidworks
Wed	9:30 am	Instructor Office Hours (2 hours) M302 or virtually on: https://utep-edu.zoom.us/j/84225773922?pwd=eXQxL2hUeWhGc2lGcFowTjRGQ3ZsUT09 Alternative times can be scheduled on a case by case basis.

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REQUIRED MATERIALS
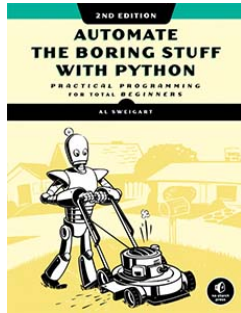
FREE TEXTBOOK!
**Automate the Boring Stuff with Python
By Al Sweigart.**

Personal Computer

To complete this class, you will need to own or borrow a windows, apple or linux computer with a modern processor (Intel I5 or better), at least 8GB of RAM and a 64 bit operating system is recommended.

COURSE OUTLINE

Description	Topics
Introduction to Python	Python Basics Flow Control Functions Lists Dictionaries Strings Reading and Writing Files Working with excel, csv and JSON data Numerical python (numpy) Plotting (Matplotlib)
Image Analysis	Quantification of image based microstructural and biomedical data. 2D and 3D analysis Basic statistical analysis from 2D and 3D data. Automation and batch image analysis
Digital Manufacturing	Introduction to computer aided design Basic 3D design and drafting 3D Printing of Structures Digital reconstruction for failure analysis problems Elementary finite element analysis

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GRADING

Description	Percentage
Reading Assessments	10%
Laboratory Assignments	40%
Quizzes	10%
Portfolio Review (Midterm)	20%
Portfolio Review (Final)	20%

Rule of 2!

I will drop the 2 lowest grades on your reading assignments, laboratory assignments, and quizzes.

You will lose 50% of the credit for late assignments. Don't ask if the deadline can be extended. If the grade on a particular assignment is the lowest, it will be dropped but no other exceptions will be made. Once a particular assignment has been graded, late submissions will receive a zero.

GRADED ASSIGNMENTS

Python assignments should be submitted using jupyter notebooks which will be covered in detail in the class. Assignments should be self contained and include all data, python libraries required to analyze a particular data set. Complete solidworks project files including part, assembly and drawing files should be submitted in a single *.zip file but the required deadline. Software version control is important to maintain compatibility for the entire student and instructor group.

TECHNOLOGY REQUIREMENTS

Homework, reading assessments and laboratory assignments will be submitted using the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Please test your preferred internet browser to ensure full compatibility with Blackboard and Blackboard Collaboration Ultra. Please reach out to the UTEP Helpdesk and Instructional Team early in first week of the semester if you have any technical difficulties.

You will need to have access to a computer/laptop, scanner, a webcam, and a microphone. IF YOU DO NOT HAVE A SCANNER, YOU CAN OPT FOR APPS LIKE CAMSCANNER TO SCAN YOUR WORK. You will require access to Adobe Acrobat Reader and Microsoft Office or Microsoft Office 365. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than your Instructional Team!

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EXCUSED ABSENCES AND/OR COURSE DROP POLICY

According to UTEP Curriculum and Classroom Policies, "When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of "W" before the course drop deadline and with a grade of "F" after the course drop deadline." See academic regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

OR

I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the Registrar's Office to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

DEADLINES, LATE WORK, AND ABSENCE POLICY

See the weekly announcements on Blackboard for the due date and time for your homework assignments, quizzes and other coursework.

Make-up work will be given *only* in the case of a *documented* emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. You will lose 50% off of late assignments. Once these the assignments for the rest of the class have been graded, then you will be assigned a zero for that assignment. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

Give yourself plenty of time to submit your coursework to avoid technical issues near deadlines.

INCOMPLETE GRADE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

ACCOMMODATIONS POLICY

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA)

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of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

CLASS RECORDINGS

In the event that virtual courses are used in this class (not presently planned but could be exercised depending upon the course of the pandemic), the use of recordings will enable you to have access to class lectures, group discussions, and so on in the event you miss a synchronous or in-person class meeting due to illness or other extenuating circumstance. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. **You may not share recordings outside of this course.** Doing so may result in disciplinary action.

COPYRIGHT STATEMENT FOR COURSE MATERIALS

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

COVID-19 ACCOMMODATIONS

Students are not permitted on campus when they have a positive COVID-19 test, exposure or symptoms. If you are not permitted on campus, you should contact me as soon as possible so we can arrange necessary and appropriate accommodations.
(*classes with on-campus meetings*) Students who are considered high risk according to CDC guidelines and/or those who live with individuals who are considered high risk may contact Center

[for Accommodations and Support Services](#) (CASS) to discuss temporary accommodations for on-campus courses and activities.

COVID-19 PRECAUTIONS

You must STAY AT HOME and REPORT if you (1) have been diagnosed with COVID-19, (2) are experiencing COVID-19 symptoms, or (3) have had recent contact with a person who has received a positive coronavirus test. Reports should be made at [screening.utep.edu](#). If you know of anyone who should report any of these three criteria, you should encourage them to report. If the individual cannot report, you can report on their behalf by sending an email to [COVIDaction@utep.edu](#).

For each day that you attend campus—for any reason—you must complete the questions on the UTEP screening website ([screening.utep.edu)](#) prior to arriving on campus. The website will verify if you are permitted to come to campus. Under no circumstances should anyone come to class when feeling ill or exhibiting any of the known COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, and alternative instruction will be provided. Students are advised to minimize the number of encounters with others to avoid infection.

Wear face coverings when in common areas of campus or when others are present. You must wear a face covering over your nose and mouth at all times in this class. If you choose not to wear a face covering, you may not enter the classroom. If you remove your face covering, you will be asked to put it on or leave the classroom. Students who refuse to wear a face covering and follow preventive COVID-19 guidelines will be dismissed from the class and will be subject to disciplinary action according to Section 1.2.3 *Health and Safety* and Section 1.2.2.5 *Disruptions* in the UTEP Handbook of Operating Procedures.