

MATH 2801L	Transition to Advanced Mathematics Laboratory	Spring 2023
Section: 001	T 8:00 – 8:50 AM SCEN 402	Prof. Matthew Clay

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Office Hours: Office hours will be held in-person, but you may request a virtual meeting.

Monday: 11:00 – 12:00, Tuesday: 11:00 – 12:00 and Thursday: 11:00 – 12:00

If you are unable to use any of the above times, please make an appointment to see me.

Course Goal: This course will serve as an introduction to software that is useful in mathematical and statistical disciplines, and additionally as an introduction to careers and opportunities involving mathematics and statistics generally speaking.

Class Delivery: Classes will consist of presentations, some by outside speakers, and computer software activities. Attendance is required and class meetings will not be recorded.

Student Responsibilities: Students are expected to attend and participate in all class meetings. Students are expected to treat each other with respect during class, using thoughtful dialogue and keeping disruptive behaviors to a minimum. This applies both to working in groups and while listening to presentations from other students. Cell phones, iPads, or any device that may distract from the class should be silenced before class begins unless instructed otherwise and may not be on the desk during class.

Academic Honesty Policy: As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail. Each University of Arkansas student is required to be familiar with and abide by the University’s “Academic Integrity Policy” which may be found at <http://honesty.uark.edu>. Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

Computer Assignments: We will be investigating three pieces of software that are useful in mathematics, both for computation and for writing. The goal is to become familiar with the purpose and abilities of the software and to know where to go for more information. By no means will you be expected to be an expert with these software packages by semesters end.

- **L^AT_EX:** This is a markup language used for typesetting mathematics and used by virtually all mathematicians and many scientists world-wide for creating documents (including this one). You can install a L^AT_EX distribution and run L^AT_EX on a personal computer using a text editor and PDF viewer. The following are packaged downloads for this that include a L^AT_EX front-end for editing and viewing documents:

MiKTeX (Windows, macOS, Linux)

MacTeX (macOS)

However, there are also very good online L^AT_EX editors that allow you use a web-interface as opposed to downloading software. A popular choice is Overleaf.

- **Mathematica:** This powerful application can perform many useful tasks including algorithmic, numeric, and symbolic computation, as well as data visualization and plotting. It must be downloaded and installed on your personal computer to use. It is free for University of Arkansas students, but must be requested from IT Services:

<https://its.uark.edu/software-equipment/get-software/>

Mathematica is also available for use on the computers in SCEN 320.

- **Python:** This scripting language can perform many tasks and is the basis for many computer applications. There are many ways to use Python, some involving downloading software onto your personal computer, some using an online interpreter. If you have use macOS or Linux, you most likely already have a basic program for using Python already. Open a “Terminal” window and enter `python`. If you use Windows, you can download Python by following these instructions:

<https://learn.microsoft.com/en-us/windows/python/beginners>

Alternatively, there are two online ways to use Python without having to download any software:

Google Colaboratory

Project Jupyter

More information will be shared later.

Information Interview: You will interview a professional from an industry of your choice approved by the instructor (that’s me!). The industry should be one that you are considering entering. The purpose of the interview is to familiarize yourself with the skills necessary in your chosen industry. Technical skills (e.g. proficiency with certain software, knowledge of a certain subject) constitute one component, but I am also interested in the non-technical skills or traits. Besides the obvious technical requirements, what is really needed to succeed (or merely survive) in the given industry? In-person interviews are ideal, but a Zoom or a phone interview is also acceptable. Before you conduct the interview, you will need to research the organization and interviewee so that you can ask appropriate questions. We will have two class periods focusing on how to find an appropriate person and conduct the interview.

After the interview, reflect on your own academic plans. Which classes (in particular your mathematics classes) will prepare you for this industry? You will write 2 pages summarizing your interview and give a 3 minute presentation based on this document. Presentations will take place on Tuesday, April 25 and Tuesday, May 2. The written document is due on Tuesday, April 25.

Course Grade:

- Attendance and Participation - 25%
- Miscellaneous Assignments - 10%
- Computer Assignments - 50%
- Information Interview - 15%

Letter grades: *A* : 100 – 90; *B* : 89 – 80; *C* : 79 – 70; *D* : 69 – 60; *F* : 59 – 0

All scores posted on or before Dead Day will be deemed accurate unless a possible error is brought to the attention of the instructor before the scheduled final exam.

Important Dates

Tuesday, January 17	Classes start
Monday, January 23	Last day to drop without W
Monday, March 21 – Friday, March 25	Spring Break
Friday, April 21	Last day to drop with W
Thursday, May 4	Last day of classes

For the complete academic calendar, see:

<https://registrar.uark.edu/academic-dates/academic-semester-calendar/>

Special Accommodation: Students who are registered with the Center for Educational Access must notify the instructor in writing by the end of the first week of class, or within one week of registering with CEA.

Inclement Weather Policy: Class will be held if the University is officially open. Allowances will be made if you are unable to safely reach the campus, but, bravely, class will go on! Do not call the Math office for inclement weather information. Instead, you should call the following telephone number: 575-7000.

Disclaimer: Information on this syllabus is subject to change. Any change will be announced on Blackboard and during the regular meeting time.