

MATH 365 (Mathematical Modelling) · Spring 2017

Instructor: Prof. Kiley

Office: Bowman Hall, Room 105D

E-mail: emkiley@mcla.edu

Telephone: +1 (413) 662-5144. From on campus, dial 5144.

Office Hours: MWF 11:00 a.m.–11:50 a.m., T 1:00 p.m.–1:50 p.m., and by appointment.

Course Number and Section: Section 01, CRN 20198, meets TR 11:00 a.m.–12:15 p.m. in Bowman 206.

Canvas Page: Please find our page on MCLA's Canvas system. If you are not automatically granted access to this page, please contact the instructor. You may be notified of important course information through Canvas messaging, so please make sure that you have access.

Required Text: *Introduction to Computational Science: Modeling and Simulation for the Sciences*, by Angela B. Shiflet and George W. Shiflet. Princeton University Press, 2014. Second edition (though the first edition will also do; please let me know if you're using the old edition). ISBN 978-0-691-16071-9. Please obtain your textbook through legal means. There are several examples and tutorials on the book's web site (<https://ics.wofford-ecs.org/>), and you must be able to access these.

Goal

The goal of this course is to examine techniques of developing mathematical models that solve different types of problems, including both discrete and continuous real-world problems that may be deterministic or stochastic. Because computational science has emerged as a fundamental and integrated aspect of almost every type of scientific research, special importance will be placed on the computational aspects of mathematical modelling.

Classes

Class time will focus both on delivering course content and on working complementary practical examples. You are expected to maintain your own notebook, and you will be held responsible for knowing the material worked through in each class. Please bring your book to class with you every time we meet. Because much of our work will be computational, please also bring your laptop with you; make sure that it has a working program for creating spreadsheets (like Microsoft Excel, or LibreOffice Calc), and that you are familiar with the basics of using your spreadsheet program. There will be the possibility of using alternative programming languages, depending on student experience and inclination.

Attendance Policy

Students are expected to attend all of their classes and to be aware of course requirements. Whenever possible, students should notify their instructors prior to an absence from class. Students who expect to be absent from classes for three days or longer should contact the Center for Student Success and Engagement for help notifying their instructors. The complete college attendance policy may be located at: <http://www.mcla.edu/Academics/registrar/academicpolicies/index>

Electronic Device Policy

While it is not forbidden to use electronic devices such as mobile phones, laptops, and tablets in the classroom, it is assumed that if a student is using such a device, it is for legitimate academic purposes (*e.g.*, taking notes, displaying electronic textbooks, using calculator functionality). The instructor reserves the right to request that students display their screen to prove that they are not violating this assumption.

Homework

Each week, you will be responsible for reading the assigned material. In mathematics, reading without working through problems is useless—so a small number of exercises will also be assigned **every class**. The lowest five of these small assignment grades will be dropped before the computation of your final course grade. No late assignments will be accepted for credit.

Because the number of problems per assignment is small, it is my expectation that your solutions to those problems will be completed with great care and presented professionally. You are encouraged to typeset your solutions using L^AT_EX, to type them with a word processor, or to hand-write them very neatly. If the work is not presentable or if it is illegible, you will not receive credit for it. You should take the problems that will be worked in class, in the

handouts, and in the textbook as examples of the level of work I expect from you. Merely giving the correct answer will receive zero credit.

You are welcome to discuss homework problems with one another, but you must write up your homework solutions on your own. Be mindful of your academic integrity.

Modelling Case Studies

There will be two course projects this semester, and details will be provided shortly. Because there will be no final exam for this course, it is expected that you will put a commensurate amount of effort into the projects.

Grading Scheme

Homework	(drop lowest 5)	40%
Projects	(30% each)	60%

Final Grades

You will be assigned a letter grade corresponding to your final course average as follows:

91% ≤	A	
89% ≤	A-	< 91%
87% ≤	B+	< 89%
80% ≤	B	< 87%
78% ≤	B-	< 80%
76% ≤	C+	< 78%
69% ≤	C	< 76%
67% ≤	C-	< 69%
62% ≤	D	< 67%
60% ≤	D-	< 62%
	F	< 60

Students with Disabilities

Any student who believes he or she may need an accommodation based on the impact of a documented disability may be eligible for accommodations that provide equal access to educational programs at MCLA. Students are advised to contact that Disability Resource Office at (413) 662-5318 or stop by CSSE, Eldridge Hall to schedule an appointment. In compliance with the Americans with Disabilities Act (ADA), the Disability Resource Office will work with students to coordinate reasonable accommodations. Students who wish to request accommodations should do so within the first four weeks of the semester. Once accommodations have been determined, the student will provide a copy of his/her accommodation plan to each individual instructor. Students must fulfill all course requirements in order to receive passing grades in their classes, with or without reasonable accommodations. Please note that accommodations cannot be granted retroactively.

Center for Student Success and Engagement

The Center for Student Success and Engagement (CSSE) offers an integrated array of services and resources to assist your transition to college. Their belief is that every student has the ability to excel academically and be successful, and to this end, they offer a range of peer-advisory programs. If you need academic support, tutoring, or supplemental advising, please stop by their office at the top level of Eldridge Hall.

Counseling Services

MCLA's Counseling Services offers a range of services including individual and couples counseling, crisis intervention, outreach workshops and educational programming, psychiatric treatment, alcohol and other drug education, consultation to faculty, staff, parents, and students, and off-campus referrals. Group counseling is available as needs arise. Counseling services are confidential and free to all enrolled MCLA students, and it's perfectly normal to ask for help. Counseling Services is located in the MountainOne Student Wellness Center, 2nd Floor, and is open Monday-Friday from 8:30 am to 4:45 pm. Students are seen at Counseling Services by appointment only. To schedule an appointment, please call or drop by the office. Please do not use e-mail to make an appointment.

Academic Integrity

A college is a community of students and faculty interested in the search for knowledge and understanding. This requires a commitment to honesty and integrity. Honesty on the part of every college student is integral to higher education at Massachusetts College of Liberal Arts. Acts of dishonesty are not merely a breach of academic honesty but conflict with the work and purpose of the entire College Community. Violations of academic honesty include but are not limited to:

- Submitting the work of others as one's own
- Unauthorized communication during or about an examination
- Use of information (notes, electronic communication, etc.) that is not permitted during exams, tests, quizzes
- Obtaining or disseminating unauthorized prior knowledge of examination questions
- Substitution of another person in an examination
- Altering College academic records
- Knowingly submitting false statements, data or results
- Submission of identical or similar work in more than one course without the approval of the current instructor
- Collaborating on material after being directed not to collaborate
- Forging a signature or false representation of a College official or faculty member or soliciting an official signature under false pretense
- Other behavior or activities in completing the requirements of a course that are explicitly prohibited by an instructor
- Plagiarism (as defined below)

Plagiarism: The academic departments of the College have varying requirements for reporting the use of sources, but certain fundamental principles for the acknowledgment of sources apply to all fields and levels of work. The use of source materials of any kind and the preparation of essays or laboratory reports must be fully and properly acknowledged. In papers or laboratory reports, students are expected to acknowledge any expression or idea that is not their own. Students submitting papers are implying that the form and content of the essays or reports, in whole and in part, represent their own work, except where clear and specific acknowledgement is made to other sources. Even if there is no conscious intention to deceive, the failure to make appropriate acknowledgment may constitute plagiarism. Any quotation—even of a phrase—must be placed in quotation marks and the precise source stated in a note or in the text; any material that is paraphrased or summarized and any ideas that are borrowed must be specifically acknowledged. A thorough reordering or rearrangement of an author's text does not release the student from these responsibilities. All sources that have been consulted in the preparation of the essay or report should be listed in the bibliography. Upon an occurrence of alleged academic dishonesty instructors may exercise their discretion in imposing a sanction.

Instructors may also report this sanction to the Registrar or file additional charges against students if they believe that additional sanctions are appropriate. Instructors will notify the Registrar in writing in either or both of the following cases:

- Any acts of academic dishonesty whenever they have imposed a sanction that is beyond the value of the assignment
- The instructor requests that the College take further action.

The Academic Appeals Committee will hear academic grievances from and about students enrolled in the undergraduate program. It will also serve as a hearing board for students charged with academic dishonesty. Further information regarding instructor and student rights and responsibilities and appropriate procedures to be followed in applying this policy may be obtained from the Office of the Dean of Academic Affairs or the Registrar. Additional policies may be found at:

<http://www.mcla.edu/Academics/registrar/academicpolicies/index>

Policies with approval dates and text (focused on curriculum) can be found by clicking on “Approved Courses and Policies” at the left of the Campus Collaboration page, then clicking on “Undergraduate Policies”.