

MATH 330 (Calculus III) · Fall 2016

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Office Hours: MW 9:00 a.m.–10:00 a.m., 11:00 a.m.–12:00 p.m., and by appointment.

Course Number and Sections: Section 01, CRN 60192, meets MWF 13:00–13:50 in Bowman 203.

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.

Required Text: Our only required textbook is the APEX calculus textbook, which is open source and freely available online at <http://www.apexcalculus.com/downloads>.

Goal

The goal of this course is to further develop the basic language and techniques of calculus via the study of series, parametric curves, and vector algebra. By the end of the term, students should be able to evaluate limits and prove series convergence using various tests and to evaluate their sums. Students will be introduced to the concept and applications of the Taylor series, and will work with problems on parametric curves, polar coordinates, and will understand the basic notions of vectors in \mathbb{R}^3 .

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 in each class. In class, you will be asked to form groups, and these groups will change several times over the course of the semester. Within your groups, you will be working through problems and discussing solutions periodically throughout each lecture. It would be helpful if you would bring your textbook to class, either as a PDF on an electronic device or as a few printed pages relevant to the chapter we're on.

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 screens to prove that they are not violating this assumption.

Important Course Notes

- When completing your homework assignments and exams, remember that you are expected to show a logically reasoned argument that leads to your solution. For this reason, I do not expect calculators or online computational tools to be very useful to you, except perhaps as a means of *checking* your homework answers. No calculators will be allowed on exams.
- No late assignments will be accepted for credit. Remember that I will be dropping your lowest homework grades.
- Please start the homework early, and discuss the content with me and with your classmates, especially if you're having difficulty with it. It is important to stay on top of things in this course, because the content will progress relatively quickly.

Canvas Homework

You will find a list of each week's reading posted on the last page of this syllabus. In mathematics, reading without working through problems is useless—so a small number of exercises will also be assigned most days, and you can complete them on Canvas. There will be twenty total homework assignments to be completed as quizzes on Canvas, of which your highest sixteen scores will be used to compute your final course average. No late assignments will be accepted for credit.

Canvas Homework 1:	Monday, 12 Sept 2016
Canvas Homework 2:	Friday, 16 Sept 2016
Canvas Homework 3:	Monday, 19 Sept 2016
Canvas Homework 4:	Friday, 23 Sept 2016
Canvas Homework 5:	Monday, 26 Sept 2016
Canvas Homework 6:	Friday, 30 Sept 2016
Canvas Homework 7:	Monday, 03 Oct 2016
Canvas Homework 8:	Friday, 14 Oct 2016
Canvas Homework 9:	Monday, 17 Oct 2016
Canvas Homework 10:	Friday, 21 Oct 2016
Canvas Homework 11:	Monday, 24 Oct 2016
Canvas Homework 12:	Friday, 28 Oct 2016
Canvas Homework 13:	Monday, 31 Oct 2016
Canvas Homework 14:	Friday, 04 Nov 2016
Canvas Homework 15:	Monday, 07 Nov 2016
Canvas Homework 16:	Friday, 18 Nov 2016
Canvas Homework 17:	Monday, 21 Nov 2016
Canvas Homework 18:	Friday, 02 Dec 2016
Canvas Homework 19:	Monday, 05 Dec 2016
Canvas Homework 20:	Friday, 09 Dec 2016

Written Homework

There will be also be ten written homework assignments due in class on the dates listed below. Only the best eight of your written assignment scores will be used to compute your final course grade. There will be no make-up assignments given.

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

Homework 1:	Wednesday, 14 Sept 2016
Homework 2:	Wednesday, 21 Sept 2016
Homework 3:	Wednesday, 28 Sept 2016
Homework 4:	Wednesday, 05 Oct 2016
Homework 5:	Wednesday, 19 Oct 2016
Homework 6:	Wednesday, 26 Oct 2016
Homework 7:	Wednesday, 02 Nov 2016
Homework 8:	Wednesday, 16 Nov 2016
Homework 9:	Wednesday, 30 Nov 2016
Homework 10:	Wednesday, 07 Dec 2016

Exams

There will be three exams, given on the following dates:

Exam 1:	Friday, 07 October 2016
Exam 2:	Wednesday, 09 November 2016
Exam 3:	Date, time, and location to be announced

Grading Scheme

Written Homework	best 8 × 3% =	24%
Canvas Homework	best 16 × 1% =	16%
Exams	3 × 20% =	60%

Final Grades

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

98% ≤	A+	
91% ≤	A	< 98%
89% ≤	A-	< 91%
87% ≤	B+	< 89%
80% ≤	B	< 87%
78% ≤	B-	< 80%
76% ≤	C+	< 78%
69% ≤	C	< 76%
67% ≤	C-	< 69%
60% ≤	D	< 67%
	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. We believe every student has the ability to excel academically and be successful, goals supported by 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”.

Tentative Schedule

Please find below the tentative schedule for the class. You are expected to have finished reading the indicated sections in the text before the lecture begins.

Date	Deliverables	Topic	Reading (do before lecture)
07 Sept		<i>Welcome; Sequences</i>	Sec. 8.1
09 Sept		<i>Sequences</i>	Sec. 8.1
12 Sept	Canvas HW 1	<i>Infinite Series</i>	Sec. 8.2
14 Sept	Homework 1	<i>Infinite Series</i>	Sec. 8.2
16 Sept	Canvas HW 2	<i>Integral and Comparison Tests</i>	Sec. 8.3
19 Sept	Canvas HW 3	<i>Ratio and Root Tests</i>	Sec. 8.4
21 Sept	Homework 2	<i>Alternating Series and Absolute Convergence</i>	Sec. 8.5
23 Sept	Canvas HW 4	<i>Power Series</i>	Sec. 8.6
26 Sept	Canvas HW 5	<i>Power Series</i>	Sec. 8.6
28 Sept	Homework 3	<i>Taylor Polynomials</i>	Sec. 8.7
30 Sept	Canvas HW 6	<i>Taylor Series</i>	Sec. 8.8
03 Oct	Canvas HW 7	<i>Taylor Series</i>	Sec. 8.8
05 Oct	Homework 4	<i>Review for Exam 1</i>	
07 Oct	Exam 1		
12 Oct		<i>Conic Sections</i>	Sec. 9.1
14 Oct	Canvas HW 8	<i>Conic Sections</i>	Sec. 9.1
17 Oct	Canvas HW 9	<i>Parametric Equations</i>	Sec. 9.1
19 Oct	Homework 5	<i>Parametric Equations</i>	Sec. 9.2
21 Oct	Canvas HW 10	<i>Calculus and Parametric Equations</i>	Sec. 9.2
24 Oct	Canvas HW 11	<i>Calculus and Parametric Equations</i>	Sec. 9.3
26 Oct	Homework 6	<i>Polar Coordinates</i>	Sec. 9.3
28 Oct	Canvas HW 12	<i>Polar Coordinates</i>	Sec. 9.4
31 Oct	Canvas HW 13	<i>Calculus and Polar Coordinates</i>	Sec. 9.4
02 Nov	Homework 7	<i>Calculus and Polar Coordinates</i>	Sec. 9.5
04 Nov	Canvas HW 14	<i>Introduction to Cartesian Coordinates in Space</i>	Sec. 10.1
07 Nov	Canvas HW 15	<i>Review for Exam 2</i>	
09 Nov	Exam 2		
14 Nov		<i>Introduction to Vectors</i>	Sec. 10.2
16 Nov	Homework 8	<i>Dot Product</i>	Sec. 10.3
18 Nov	Canvas HW 16	<i>Cross Product</i>	Sec. 10.4
21 Nov	Canvas HW 17	<i>Lines</i>	Sec. 10.5
28 Nov		<i>Planes</i>	Sec. 10.6
30 Nov	Homework 9	<i>Vector-Valued Functions</i>	Sec. 11.1
02 Dec	Canvas HW 18	<i>Calculus of Vector-Valued Functions</i>	Sec. 11.2
05 Dec	Canvas HW 19	<i>Calculus of Motion</i>	Sec. 11.3
07 Dec	Homework 10	<i>Unit Tangent and Normal Vectors</i>	Sec. 11.4
09 Dec	Canvas HW 20	<i>Arc Length and Curvature</i>	Sec. 11.5
12 Dec		<i>Review for Final Exam</i>	