

Course Syllabus  
MAT 301–Calculus III  
Fall 2015  
Dr. John Peter

**Course Description:** In MAT 301 we will begin by covering the theory of infinite series. We'll then look at calculus from a parametrized point of view, and finish off by studying the geometry of space and vector-valued functions. We will cover most of Chapters 9 through 12 of the textbook. This is the third part of Utica College's four-part calculus sequence. The course will be predominantly example-driven, but we will spend some time developing ideas and deriving the necessary formulas.

**Course Learning Goals:**

- In accordance with the Program Learning Goals of the Mathematics Department, the student will demonstrate an ability to formulate and solve mathematical problems and to communicate mathematics in written form.
- *Infinite Series:* The student should understand the definitions of infinite sequences and series and be able to apply a variety of tests for convergence to infinite series. These tests include (but are not limited to) the integral test, the comparison tests, the alternating series test, the ratio test, and the root test. The student should also be able to compute the Taylor polynomials for various functions, understand Taylor's Theorem for estimating remainders, compute the radius and interval of convergence for a given power series, represent functions using power series, and make basic computations concerning (the convergence of) Taylor series.
- *Parametrized Calculus:* The student should be able to translate between parametric and plane curves, differentiate parametric curves, translate between rectangular and polar coordinates, and compute things like area and arc length in polar coordinates.
- *Geometry of Space:* The student should know the basic properties of vectors in the plane and in space. The student should also be able to compute and interpret the dot product and cross product of vectors, understand the various equations for lines and planes in space, and recognize and write equations for cylindrical surfaces, quadric surfaces, and surfaces of revolution.
- *Vector-Valued Functions:* The student should be able to understand the concepts of limit and continuity in the setting of vector-valued functions. The student should also be able to differentiate and integrate vector-valued functions,

analyze velocity and acceleration in the setting of vectors, compute tangent and normal vectors to curves, and find the arc length and curvature associated with a space curve.

**Class Meetings:** Tuesday & Thursday from 10:00am to 11:15am in 103 ECJS

**Required Text:** *Calculus: Early Transcendental Functions*, Sixth Edition, by Ron Larson and Bruce H. Edwards. ISBN: 978-1-285-77477-0

**Contacting me:** EMAIL: [jwpeter@utica.edu](mailto:jwpeter@utica.edu) (The best way to contact me)  
OFFICE PHONE: 315-792-3730

**Office/Hours:** Room 104 DePerno Hall  
Monday from 1:30PM to 2:30PM  
Tuesday from 8:30AM to 10:00AM  
Thursday from 11:30AM to 1:00PM  
*or* By Appointment (made either in person or by email)

**Coursework/Weights:**

Assessment	% of Final Grade
Weekly Homework	20%
<i>Mathematica</i> Projects	5%
Midterm Exam 1	25%
Midterm Exam 2	25%
Final Exam	25%

**Final Exam Date/Time:** Tuesday December 15 at 9am

**NO MAKE-UP WORK WILL BE GIVEN.**

**Grading:** The grading scale will be *no worse* than:

90 – 100% = A/A-      70 – 79% = C+/C/C-      Below 60% = F  
80 – 89% = B+/B/B-      60 – 69% = D+/D

**Course Webpage:** [https://www.utica.edu/faculty\\_staff/jpeter/mat301f15.cfm](https://www.utica.edu/faculty_staff/jpeter/mat301f15.cfm)

**Secrets to success in this course:**

- Do lots of problems ... homework and more!

- Come to class
- Read the book
- ASK QUESTIONS!

**Calculators:** You may find a graphing calculator useful for a number of topics that we cover. However, everything that will appear on quizzes and exams can be done without one! Calculators will typically not be allowed on quizzes and exams.

**Attendance:** It is mandatory that I keep track of your attendance. An attendance sheet will be available for you to sign at the beginning of each class. Your attendance will not formally count for any part of your grade. However, it may be used, at the instructor's discretion, to determine borderline grades at the end of the semester. **YOU ARE EXPECTED TO ATTEND EVERY CLASS PERIOD.** In the event that you miss class (or are mentally absent from class!) it is your responsibility to keep up with all announcements, syllabus adjustments, and/or policy changes made during scheduled class time and/or sent to you via your Utica College email. Please make sure that your Utica College email is functioning properly, and make every effort to contact me using your Utica College email address (as opposed to gmail, yahoo, etc.) to avoid confusion. If class must be canceled for some reason, you will be notified as early as possible via your Utica College email.

**Derivatives/Integrals Proficiency Test:** During the latter half of the semester students will be given several opportunities to take both a Derivatives Proficiency Test (DPT) and an Integrals Proficiency Test (IPT). Knowledge of basic differentiation and integration rules is vital to success in this course and in further courses in the calculus sequence and beyond. In order to pass this course a student must receive a score of at least 90% on both the DPT and the IPT. Failure to score 90% on these tests will result in a grade of F for the course. Otherwise, these tests will have no affect on the grade for this course. A link to practice tests will be available on the course webpage.

**Mathematica:** Two assignments that require the use of the software package *Mathematica* will be assigned throughout the semester. The assignments will provide you with the majority of the necessary *Mathematica* code, but having some familiarity with the program before the first project is assigned can't hurt! *Mathematica* is installed on computers in all major computer labs, including the library computers. Most of the relevant information for obtaining/using *Mathematica* can be found here: <http://www.utica.edu/academic/iits/computerservices/mathematica/index.cfm>

**Classroom Etiquette:** Always keep in mind that you are in a college classroom.

You and all of the people around you have paid to be here. By simply showing up for class, you are demonstrating that you take very seriously the opportunity to pursue the best learning experience possible. You are expected to treat all people in the classroom with respect, and to come to class prepared to learn. Disruptive behavior, including (but not limited to) talking, whispering, texting, eating loudly, etc. will negatively impact EVERYONE'S experience and will not be tolerated.

**Academic Honesty:** Academic honesty is necessary for the free exchange of ideas. Utica College expects academic honesty from all students and Utica College faculty are authorized to assign a wide range of academic penalties for incidents of academic dishonesty. Academic dishonesty includes both cheating and plagiarism. Plagiarism is the intentional or unintentional use of other people's ideas, words, and/or factual information as your own and without crediting the source. It doesn't matter if the words come from a book, journal article, web site, or personal letter; if somebody else originally wrote them you may not use them without attributing them to that individual by appropriately citing the source. Plagiarism also refers to self-plagiarism, or re-purposing material that you've already completed for another course or assignment. Cheating refers to giving and/or receiving unauthorized assistance in taking examinations or creating assigned and/or graded class work. Students who assist other students in, or contribute to, acts of academic dishonesty are subject to the appropriate penalties.

As mentioned above, Utica College faculty are authorized to assign a wide range of academic penalties for incidents of academic dishonesty. Depending on the nature of the offense, the penalty may include a reduced grade or grade of zero for the particular assignment, a grade of F for the course, or the grade of "F for cheating" in the course. Incidents of academic dishonesty are reported to the Vice President for Academic Affairs who will refer any repeat offense, or any particularly egregious first offense, to the Academic Standards Committee which may recommend a more severe penalty than that imposed by the faculty member.

**Disability Disclosure:** Any student who has need of special accommodations in this class due to a documented disability should speak with me as soon as possible, preferably within the first two weeks of class. You should also contact Kateri Henkel, Director of Learning Services in the Academic Support Services Center (315-792-3032 or [khenkel@utica.edu](mailto:khenkel@utica.edu)) in order to determine eligibility for services and to receive an accommodation letter. We will work with you to help you in your efforts to master the course content in an effective and appropriate way.

**Writing Proficiency:** Students are expected to possess and use adequate writing skills. All written assignments should be well-written and free of grammar, punctuation, and spelling errors. Help is available in the Writing Center located in the

library.

**Math and Science Center:** Peer tutors are available in the Math and Science Center located on the first floor of the library. These services are typically available beginning in the second week of a Fall/Spring semester.

### **Tentative Course Schedule**

9/1: Syllabus / Section 9.1	10/22: Section 10.5
9/3: Section 9.2	10/27: Section 10.6,11.1
9/8: Section 9.3 / Last day to drop	10/29: Section 11.2
9/10: Section 9.4	11/3: Section 11.3
9/15: Sections 9.5, 9.6	11/5: <b>MIDTERM EXAM 2</b> Assign MMTCA 2 (11/6-Last Day to Withdraw)
9/17: Section 9.7	
9/22: Section 9.8	11/10: Section 11.4
9/24: Section 9.9	11/12: Section 11.5/ MMTCA 2 Due
9/29: Section 9.10	11/17: Section 11.6
10/1: <b>MIDTERM EXAM 1</b> Assign MMTCA 1	11/19: Section 11.7
	11/24: Section 12.1
10/6: Section 10.1	11/26: <b>NO CLASS - Thanksgiving</b>
10/8: Section 10.2/MMTCA 1 Due	12/1: Section 12.2
10/13: <b>NO CLASS - October Break</b>	12/3: Section 12.3
10/15: Section 10.3	12/8: Section 12.4
10/20: Section 10.4	12/10: Section 12.5

*The author of this syllabus reserves the right to change it at any time during the semester.*