

# MATH 231 – Spring 2016 – Section 010

## SYLLABUS

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**Instructor:** Suzanne Boyd, Associate Professor  
**Office:** EMS E443, [sboyd@uwm.edu](mailto:sboyd@uwm.edu), 414-708-6472  
**Office Hours:** Tues 3:30-4:45 in Phys 326; Thur 3:30-4:45 in EMS E443; & appt  
**Course Coordinator:** Rebecca Bourn, EMS E462, 229-4184.

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**Class meetings and location:** TR 5-6:50, **moved to Phys 143** ~~EMS E295~~

**Course Title:** Calculus and Analytic Geometry I

**Text:** Essential Calculus, 2<sup>nd</sup> edition, by Stewart, (ISBN: 978-1-133-11229-7).

*Please bring your text to class each day!*

**Prerequisite:** Math Placement Level A (including grades of C or better in both Math 116 and 117, or 211 and 117, or equivalent placement).

*Students who do not meet the prereq will be notified by email then dropped.*

**Website:** Check D2L for grades. For this syllabus and other course information, see:  
<http://www.uwm.edu/~sboyd/M231S16.html>

### Drop/Audit Policy

M	Jan 25	First day of classes <i>Students who do not attend class or contact me by Fri, Jan 29 will be dropped.</i>
M	Feb 1	Last day to add a Math department class
F	Feb 5	Last day to change to or from credit/no credit/audit status
F	Feb 19	Last day to drop without a “w” on record
F	March 25	Last day to drop
	March 13-20	Spring Recess
Tu	May 10	Last day of classes
Th	May 12	Final Exam for this section (daytime sections are on May 13)

### Grading

This is a special section of Math 231. Much of class time will be spent on projects, group activities, and active learning in general. Your grade will be determined as follows:

#### Overall Course Score\*

30%	Gateway/Basic Skills Exams (4 x 7.5% each)
15%	Concepts/Advanced Skills Exams (2 x 7.5% each))
30%	Final
15%	Projects (P1=5%, P2=10%, individual write-ups)
10%	<u>In-class attendance/participation/homework</u>
100%	total

**Grading Scale:** Plus/Minus grading will apply

A = 93-100	A- = 90-92	B+ = 87-89
B = 83-86	B- = 80-82	C+ = 77-79
C = 73-76	C- = 70-72	D+ = 67-69
D = 63-66	D- = 60-62	F = under 60

**Gateway Exams**

*\*The good news: if you earn at least an 80% on each gateway, and at least a C on the final exam, you are guaranteed at least a C in the class.*

**The bad news: If you do not (eventually) pass all 4 gateway exams with a grade of 80% or higher, your maximum grade will be a C-.**

Each gateway exam will first be given in class. Students who do not earn an 80% need to retake that gateway until they earn an 80%. The gateway retakes will be graded with no partial credit on a pass/fail basis (80% or higher = Pass, lower than 80% = Fail). Only the correct answer will be considered for credit for a problem. Retakes will be administered in the Gateway Testing Center in NWQ B2461. You may retake each test only once per day. You will have two weeks from when the Gateway Exam is returned to the class to retake the exam. The score of the first taking of a Gateway Exam will count as your Gateway exam grade for the course. Practice gateway tests are at:

<http://www4.uwm.edu/letsci/math/courses/gateway.cfm>

**Exams/Final Exam**

There will be two 110 min exam periods during the semester, and a final exam.

- Each of the two exams will be in the following format: 30 min Gateway 1 (or 3), then 30 min Gateway 2 (or 4), then 45 min Advanced Skills/Concepts Exam. Write out all your work, partial credit will be assigned, including on the gateway portion since this first taking of the gateway is part of the midterm.
- The final exam will be cumulative. Since this is an evening section, the final exam will not be given at the common 231 final time, but rather **5 – 7 pm on Thursday, May 12**, room TBA (likely in our regular classroom).
- Students *with a conflict* can either take the final exam during the common Math 231 final time (Friday May 13, 7:30—9:30 am) or during the Optional Exam Time (Thursday Math 19, 5:30 – 7: 30 pm). This must be arranged in advance!
- *All exams are closed book, no notes, no electronic devices (no calculator, no cell phone, no smart watch).* No makeups will be given, except for tests missed for religious observance or documented medical emergency.

**In-class work**

Much of class time will be spent with students working on exercises / activities in groups. A small number of problems (ranging from easy, medium, to more difficult) will be assigned to be worked on each class period, and will be due ~~the next class period~~ **the following Tuesday at the start of class**. Be sure to show your work and use proper mathematical language and notation. These assignments will be graded for completeness and proper notation, not correctness.

## Projects

There will be two projects assigned during the semester, each focusing on the interplay between theory and applications of calculus to a real-world topic. I recommend you work on the projects collaboratively, but each student must turn in an individual write-up.

## MapleTA

Gateway practice problems will be available through an online homework system called MapleTA. You will be provided with access to MapleTA for free this semester. MapleTA is easy to use and can be used on many devices. It does not require a student to learn how to use the full version of Maple! More information will be given in a separate handout.

## Extra Practice / Extra help

Exercises from the textbook will be recommended to you for each section, but not collected. Practicing these problems (including writing out complete solutions!) and reading the textbook will help you prepare for all components of the course (gateways, exams, projects, in-class and homework). You are expected to do these exercises regularly. Come to see me for any help you need! There are also multiple tutoring opportunities on campus, both in the library and in our new **Calculus Workshop** in Physics room 326. This is a room where you can go to work on calculus problems in a collaborative setting with other students from the class and across other section of math 231. Extra tutoring and homework help from teaching assistants and professors will be available. The workshop will be open approximately from 8-5 M-F even if tutors are not present. See: <http://uwm.edu/math/undergraduate/resources/tutoring/>

**Time Investment.** To comply with a Higher Learning Commission requirement, the course syllabus provides information on the minimum investment of time required by an average student to achieve the learning goals of the course.

Study leading to one semester credit represents an investment of time by the average student of not fewer than 48 hours for class contact in lectures, for laboratories, examinations, tutorials and recitations, and for preparation and study; or a demonstration by the student of learning equivalent to that established as the expected product of such a period of study. (The total number of hours should be 48 per credit hour awarded for the course; here,  $48 \times 4 = 192$  hours).

See [https://www4.uwm.edu/secu/docs/faculty/2838\\_Credit\\_Hour\\_Policy.pdf](https://www4.uwm.edu/secu/docs/faculty/2838_Credit_Hour_Policy.pdf)

The *minimum* time an average student should expect to spend on this class is as follows:

Time in the classroom (face to face instruction) = 44 hours

Time taking exams = 6 hours

Time completing assignments = 97 hours

Time spent reading lecture and other material = 27 hours

Time for preparation and study for exams = 18 hours

*You may need to spend more time if you are less familiar with the prerequisite material. Also, these figures are approximate as, except for time in examinations, these activities overlap considerably.*

**Tentative schedule:****Exams and Project due dates are Thursdays of the listed weeks**

Week 1	1/25 – 1/29	1.1, 1.2
Week 2	2/1—2/5	1.3, 1.4, 1.5
Week 3	2/8—2/12	1.6, 2.1, 2.2
Week 4	2/15—2/19	2.3, 2.4, 2.5; Project 1 due
Week 5	2/22—2/26	2.6, 2.7, 2.8
Week 6	2/29—3/4	Review, Exam 1
Week 7	3/7—3/11	3.1, 3.2, 3.3
	Spring break	
Week 8	3/21—3/25	3.4, 3.5, 3.6
Week 9	3/28—4/1	3.7, 4.1, 4.2
Week 10	4/4—4/8	4.3, 4.4, 4.5; Project 2 due
Week 11	4/11—4/15	5.1, 5.2, 5.3
Week 12	4/18—4/22	Review, Exam 2
Week 13	4/25—4/29	5.4, 5.5, 5.6
Week 14	5/2—5/6	5.7, Review
Week 15	5/9—5/10	Review
Finals Week	5/ 12-13 & 16-20	The Final for this section is Thurs May 12, 5-7pm

**Recommended Textbook Exercises (we'll fill in throughout the semester)**

1.1		3.4	
1.2		3.5	
1.3		3.6	
1.4		3.7	
1.5		4.1	
1.6		4.2	
2.1		4.3	
2.2		4.4	
2.3		4.5	
2.4		5.1	
2.5		5.2	
2.6		5.3	
2.7		5.4	
2.8		5.5	
3.1		5.6	
3.2		5.7	
3.3			

## **University Policies**

### **Repeats**

Students repeating for the second time (third time taking) must do the following.

1. Obtain permission from their academic deans' office for the repeat.
2. Meet with an Undergraduate Advisor for approval, Profs. Beder or Boyd.
3. Take completed and signed drop/add form (including academic dean approval and Math Department approval) to Mellencamp Hall 274.

### **Academic Misconduct**

The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Further information can be found at:

[http://www4.uwm.edu/acad\\_aff/policy/academicmisconduct.cfm](http://www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm)

### **Sexual Harassment**

Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the careers, educational experience, and well-being of students, faculty and staff. The University will not tolerate behavior between or among members of the University community which creates an unacceptable working environment. The policy on discriminatory conduct, including sexual harassment, can be found at: <http://www4.uwm.edu/sexualharassment/>

### **Other Information**

1. Room changes, course cancellations, etc., are posted outside of the classroom door on Department letterhead, and emailed to the students.
2. If you need special accommodations in order to meet any of the requirements of the course, please contact me as early as possible.  
<http://uwm.edu/arc/>
3. Students will be allowed to complete examinations or other requirements that are missed because of a religious observance:  
<http://www4.uwm.edu/secu/docs/other/S1.5.htm>
4. Students called to active military duty:  
[http://www4.uwm.edu/current\\_students/military\\_call\\_up.cfm](http://www4.uwm.edu/current_students/military_call_up.cfm)
5. Incomplete Grades: <http://www4.uwm.edu/secu/docs/other/S31.pdf>
6. Grade appeal procedures: <http://www4.uwm.edu/secu/docs/other/S28.htm>
7. In class final exams: <http://www4.uwm.edu/secu/docs/other/S22.htm>

**Description of Course Content.** This is a one-semester course in calculus for mathematics, statistics, actuarial science, engineering, and the sciences. In this course the students will be introduced to basic calculus concepts including limit, differentiation, and integral, in a single variable. An emphasis of this course is the theory of calculus and its applications. In Chapter 1, after a brief review of the concept of functions and their graphs, the concept of limit will be discussed. In Chapter 2, the basic concepts of differentiation, techniques, and applications are included. In Chapter 3, further applications of differentiation are discussed. These include curve sketching and optimizations. In Chapter 4, the concept of integrals including the Fundamental theorem of Calculus is examined. The material in Chapter 5 is devoted inverse functions, including exponentials, logs, and trig functions and their inverses

### **Learning Outcomes and Assessment**

This course satisfies two General Education Requirements (GERs) – A Distribution Requirement in Natural Sciences, and Part B of the GER Competency Requirement In Quantitative Literacy. Upon successful completion of this course, students will be able to do all of the following.

1. Understand and apply the major concepts of calculus (limits, derivatives, and integrals), including the applications to other disciplines.
2. Apply ethical reasoning to questions, concepts, and practices within a natural science discipline.
3. Interpret and analyze quantitative information using appropriate quantitative tools.
4. Reach logical conclusions, predictions, or inferences.
5. Assess the reasonableness of one's own conclusions.
6. In light of the above, this course will help students achieve the UW system shared learning goal of: Critical and Creative thinking skills, including inquiry, problem solving, and higher order qualitative and quantitative reasoning.

### **Assessment of Learning Outcomes**

Homework and examinations will be given which are readily for the instructor to be able to identify strengths and weakness of a student as related to the stated learning goals. The accumulated class data will result in continual improvement of the course presentation and appropriate adaptation to the student audience.

To determine whether a student has successfully met these goals, some exam problems will be designated as GER problems. For each GER problem, the instructor will determine whether the student has (i) exceeded, (ii) met, or (iii) not met the GER goals.

For the final course grade however, no distinction will be made between GER and non-GER problems, and any student earning a passing grade will earn GER NS and GER QL-B credit.