

Information for Students in Math10560, Spring 2020

Course Website: <http://www3.nd.edu/~apilking/Math10560/>

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Text: Stewart, *Single Variable Calculus*, Eighth edition. If you had Math 10550 last semester, you do not need a new book or access code for online homework (assuming you purchased the 4-month Cengage Unlimited Access). See [Book/Access Code Information](#) on the website before you make any purchases.

Syllabus: We will cover Chapters 6 and 7, parts of Chapters 8 and 9, Chapter 11 and lastly Chapter 10. The topics are logarithmic and exponential functions, techniques of integration and applications, an introduction to differential equations, infinite sequences and series, power series and parametric equations and polar coordinates.

You are encouraged to read each section of the text before it is covered in class and review any concepts from Calculus 1 and Precalculus that will be used. To help you prepare for each lecture, [Preview Videos and lecture notes](#) and a list of prerequisites from precalculus under [Preparation Precalculus](#) on our website. Slide and video solutions to the lectures are also available on our website under [Resources for Sections 01 and 06](#) on our website. After working through your homework, you should prepare for your quiz in tutorials by visiting the [Old Exams For Practice](#) link on our website. You should pick out the questions from the relevant sections (check under [Quiz Information](#) For details) and attempt them. The solutions are posted so that you can check your answer and your methodology.

Examinations: There will be three midterms, ten quizzes/group activities (in tutorials) and a final exam.

Exam Locations

	Exam 1	Exam 2	Exam 3	Final Exam
Time and Date	8-9:15 a.m. Tue. Feb. 18	8-9:15 a.m. Thur. Mar. 19	8-9:15 a.m. Tue. April 21	1:45-3:45 p.m. Thur. May 07
All Sections	Stepan Center	Stepan Center	Stepan Center	TBA

Calculators will **NOT** be allowed on exams.

Class Attendance: A first-year student who accumulates more than 3 unexcused absences may be given an F. Whether your instructor enforces this policy or not, it is not a good idea to skip classes. Exit surveys for this class show that students who skip classes fall behind very quickly and many students attributed a significant drop in their grade to this factor.

Tutorials: The Tuesday tutorials are mandatory. There are 12 tutorials in all, the first is an information/orientation session for the course and the last is a review session. All tutorials will be worth 10 points. Quizzes and/or group activities will be conducted during 10 of the the tutorial sessions. Tutorials count for a total of 100 points toward your final grade, the two lowest grades for your tutorials will be dropped. **There will be no tutorials in the weeks of midterm exams, even for a Thursday exam.** You will find a list of material to be covered in quizzes and solutions to the previous worksheets on our website under [Quiz Information](#). To prepare for quizzes, please look up old exam questions on these topics from our website [Old Exams For Practice](#). Our statistics show that preparing for tutorials each week by working through old exam questions leads to higher grades on exams.

Homework: Homework problems will be assigned and graded electronically. (Click on [Online Homework Information](#) on the website for more details). The online homework system has many extra learning tools such as interactive practice problems(master it), videos and links to Wolfram Alpha demonstrations in the text. You are encouraged to make full use of these extra features. Please refer to the separate document Information on Online Homework and the web page listed at the top of this document for details.

Missed Exams: Note that there will be three Midterm Exams and a Final Exam. Please take note of the dates of all exams. A student who misses an examination will receive zero points for that exam unless he or she has written permission from their dean(or the dean's designee). Please be aware that travel plans, sleeping in, defective alarm clocks, etc. are not considered to be a valid excuse! If you have a valid excuse (illness, excused athletic absence, etc.) for missing an exam, please see your instructor ASAP (preferably before the exam) and a proctored makeup exam will be scheduled if time permits. If there is no proctored make-up exam scheduled, the instructor will substitute the average of your other grades for that exam.

Missed Tutorials A student who misses a tutorial will receive zero points for that tutorial unless he or she has written permission from your dean(or the dean's designee). Travel plans, sleeping in, defective alarm clocks, etc. are not considered to be a valid excuse! If you have a valid excuse (illness, excused athletic absence, etc.) for missing a tutorial, please make sure that your tutor receives the note and your tutor will give the average of your other tutorial grades for that tutorial at the end of the semester.

Exam Conflicts: The exam conflicts are governed by The [undergraduate academic code](#) . According to section 3.2.2.3, students with 3 or more finals in one day, or 4 or more finals in a 24 hour period, may negotiate to change the time of one of these finals (see section 3.2.2.4 of the [undergraduate academic code](#)). Any student with exam conflicts (midterms of finals) must submit an eForm (through

the Academic e-forms App. on inside-ND) at least one week before the exam period to allow for sufficient time to resolve the conflict.” Note that unless your reason for requesting a rescheduled final are in accordance with university regulations, you will not be allowed to reschedule your final. In particular TRAVEL PLANS THAT CONFLICT WITH YOUR FINAL EXAM(INCLUDING CATCHING A BUS TO THE AIRPORT) AND ATTENDING FAMILY EVENTS SUCH AS WEDDINGS AND GRADUATIONS DO NOT QUALIFY AS A REASON TO HAVE YOUR FINAL RESCHEDULED.

Grading:

Midterms: 100 points each

Final: 150 points

Quizzes/Group Activities: 100 points

Homework: 50 points (each homework (after the first two) carries equal weight)

Your final grade will be determined by your total score (out of 600).

Honor Code: Both examinations and homework are conducted under the [Honor Code](#). While discussion in small groups in doing homework is permitted (and strongly encouraged) in this course, the work should be your own. Letting someone login in your name and do your homework is clearly a violation of the honor code. (Please note that the online homework system tracks when you open a homework and how much time you spend on it.) Claiming to have completed coursework when you have in fact not done so is also a clear violation of the honor code.

Exams and quizzes are closed book and are to be done completely by yourself with no help from others, no calculators and no cheat sheets are allowed. Obviously copying during exams or quizzes or consulting cheat sheets etc.. is a violation of the honor code as is altering an exam after it has been graded and claiming points for the altered material.

Schedule Math10560 Spring 2020

01/14	Tue.	Orientation and course information
01/15	Wed.	6.1. Inverse Functions
01/17	Fri.	6.2*. The Natural Logarithmic Function
01/20	Mon.	Catch Up
01/21	Tue.	Quiz 1
01/22	Wed.	6.3*. The Natural Exponential Function
01/24	Fri.	6.4*. General Logarithmic and Exponential Function
01/27	Mon.	6.5. Exponential Growth and Decay
01/28	Tue.	Quiz 2
01/29	Wed.	6.6. Inverse Trigonometric Functions
01/31	Fri.	6.8. Indeterminate Forms and L'Hospital's Rule
02/03	Mon.	7.1. Integration by Parts
02/04	Tue.	Quiz 3
02/05	Wed.	7.2. Trigonometric Integrals
02/07	Fri.	7.3. Trigonometric Substitution
02/10	Mon.	7.4. Integration of Rational Functions by Partial Fractions
02/11	Tue.	Quiz 4
02/12	Wed.	7.4. Integration of Rational Functions by Partial Fractions
02/14	Fri.	7.5. Strategy for Integration
02/17	Mon.	Review for Exam 1
02/18	Tue.	Exam 1 (No Tutorial)
02/19	Wed.	Return and discussion of Exam 1 (Topics discussed will appear on Quiz/WS 5)
02/21	Fri.	7.7. Approximate Integrals
02/24	Mon.	7.8. Improper Integrals
02/25	Tue.	Quiz 5
02/26	Wed.	8.1. Arc Length
02/28	Fri.	9.2. Direction Fields and Euler's Method
03/02	Mon.	9.3. Separable Equations
03/03	Tue.	Quiz 6
03/04	Wed.	9.5. Linear Equations
03/06	Fri.	11.1. Sequences
03/09	Mon.	Spring Break
03/10	Tue.	Spring Break
03/11	Wed.	Spring Break
03/13	Fri.	Spring Break

03/16	Mon.	11.2. Series
03/17	Tue.	No Tutorial
03/18	Wed.	Review for Exam 2
03/19	Thur.	Exam 2
03/20	Fri.	Return and discussion of Exam 2 (Topics discussed will appear on Quiz/WS 7)
03/23	Mon.	11.3. The Integral Test for p-series.
03/24	Tue.	Quiz 7
03/25	Wed.	11.4. The Comparison Tests
03/27	Fri.	11.5. Alternating Series
03/30	Mon.	11.6. Absolute Convergence and the Ratio and Root Tests
03/31	Tue.	Quiz 8
04/01	Wed.	11.7. Strategy for Testing Series
04/03	Fri.	11.8. Power Series
04/06	Mon.	11.9. Representations of Functions as Power Series
04/07	Tue.	Quiz 9
04/08	Wed.	11.10. Taylor and Maclaurin Series
04/10	Fri.	Easter Break
04/13	Mon.	Easter Break
04/14	Tue.	Quiz 10
04/15	Wed.	11.11. Applications of Taylor Polynomials
04/17	Fri.	10.1. Curves Defined by Parametric Equations
04/20	Mon.	Review for Exam 3
04/21	Tue.	Exam 3 (No Tutorial)
04/22	Wed.	10.2. Calculus with Parametric Curves
04/24	Fri.	10.3. Polar Coordinates
04/27	Mon.	10.4. Areas and Lengths in Polar Coordinates
04/28	Tue.	Review worksheet.
04/29	Wed.	Review for Final
05/07	Thurs.	Final Exam 1:45-3:45 p.m.

Study Habits/Learning Strategy In this course we emphasize both the acquisition of new ideas and the process of solving problems with those ideas. In order to develop a thorough knowledge of the material, it is important that you actively engage in the process of problem solving. **Reading the book and completing the homework** will help you understand the material section by section. **Working on old exam questions and tutorial worksheets** will take you a step further towards integrating the concepts and seeing the big picture. Exam questions and tutorial worksheets often contain problems that require material from a number of sections and often require concepts covered in Calculus 1 and Precalculus. It is very important to be willing to look up and review material from previous sections and courses when you discover you need to. It is also essential to prepare for tutorials by completing the homework and trying the [old exam questions](#) on the sections to be covered ([Quiz Information](#)). **On the day of the exam, you will be required to answer questions on a large body of material without any props.** You must prepare honestly and thoroughly for this scenario. As mentioned above, old exams are available on our website for practice. More tips on Studying appear on the website under [Study Tips](#).

Survey Results Spring 2013 A survey conducted in Spring 2013 on exiting Calculus II students revealed some of the difficulties that students had.

Common Difficulties Reported by Students (Survey Spring 2013)

- This is considered a difficult course and covers a lot of material. If you fall behind, you get lost very quickly. It is not unreasonable to expect to spend an average of 5-7 hours outside of class time on summarizing your class notes, working through homework and old exam questions.
- Students who skipped classes got lost very quickly.
- Many students fall behind in this course because they have to keep up with deadlines for projects and labs for other courses. (I suggest you set by time for mathematics each week and stick to your schedule).
- Some students delete important e-mails without opening them. **Communication for these course is mainly through e-mail or in class.** Please make a folder in your e-mail account to store all messages pertaining to this course for your reference. In particular store all messages from your instructor, your tutor or Professor Pilkington.
- Exam 3 covers A LOT of material much of which is new. Many students misjudged the time needed to review for this exam with disastrous results. This exam also seems to coincide with deadlines for projects and activities in other classes.
- Many students were unaware of the resources provided in the online homework system and on the website. Please familiarize yourself with the website and the resources both there and in your homework.
- In general students tend to be unaware of the help available for the course. In addition to office hours, there are a number of places to get help listed below. I suggest you pick a help session that suits your timetable and mark it on your calendar each week, leaving that time free to attend the help session if you need to. When working on summarizing lectures, homework and old exam questions, make a list of the concepts and problems that you are having difficulty with and bring your list to the help session each week. Office hours and help rooms tend to get crowded just before exams, so it is best to take stock of your difficulties and get help on a weekly basis. Keep in mind that experience will help you to avoid making mistakes on the exam, but, ironically, the (most

common) way to get experience is to make mistakes. So I suggest you become familiar with your own personal tendencies towards mistakes before the exam and work with a tutor/instructor/coach on how to fix/avoid them.

- Most students say they would benefit from improving their time management and study skills. You will find lots of good advice on the internet about this and I suspect that it will help many of you to try to improve in these areas. In particular, in light of the difficulties that many students had with procrastination due to deadlines in other courses, it seems time management is crucial.
- It seems that students get very little advice on how to deal with a bad grade in this or any course. For this course, grades tend to improve significantly if you work on old exam questions under the supervision of an instructor/tutor on a regular basis (weekly). If you pick some old exam questions from the website on topics already discussed in class and try them before you attend office hours/help room, you will find that your instructor/tutor will be more than happy to help you identify your issues, whether they are in understanding current material, foundational difficulties in topics covered in earlier courses or poor study skills. You may of course have to share your instructor/tutor's attention with other students, but, on the other hand, it is often very insightful to brainstorm with a group. As mentioned above, starting your study a few days before the exam is not a good strategy, so make sure you consistently attend help sessions over a number of weeks.
- When students exiting from the course in Spring 2013 were asked what advice they would give to students taking the course in subsequent semesters, most said that they would advise you to keep up with the material and familiarize yourself with the resources on the website.

Resources Please make sure you are aware of the resources for this course by taking time to browse through the website and the online homework. Of note are :

Online Homework Practice problems, videos, interactive e-book with links to Wolfram demonstrations and videos.

Website

- Practice Exams under [Old Exams For Practice](#),
- Old Exam Questions under [Old Exams For Practice](#),
- Notes from Spring 2016, [Lectures Calculus 2](#),
- Calculus 1 materials for reference and review, [Lectures Calculus 1](#) and [professor Borelli's Lectures](#).
- Algebra/Precalculus materials for reference and review, [Algebra/Precalculus Review](#) and online review module in webassign.

Help See website for more details.

- Office Hours: Your instructor and tutor will announce office hours in class; [Help Available](#).
- Math Help Room (Walk in Help Room) Located in Hurley 153 and is open Monday through Thursday 1pm-9pm, Friday 1pm - 4pm, and Sunday 7pm - 9pm.

- Tutors available at Mathematics Library, Sun-Thurs, 7-11p.m., e-mail mathlib.1@nd.edu to schedule.
- Learning resource center, tutoring and collaborative learning sessions, check FYS website for details
- Exam Reviews, The night before each exam, one of the instructors will hold a walk in review/Q&A session; [Exam Reviews](#).
- If you have a failing grade, your instructor/tutor will contact you about an extra weekly coaching session. It is in your interest to attend.