Information for Students in Math10560, Spring 2018

Course Website: [http://www3.nd.edu/~apilking/Math10560/](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 (you may need an access code for homework if you were in Professor Snow’s section last semester). See [Book/Access Code Information](http://www3.nd.edu/~apilking/Math10560/) 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](http://www3.nd.edu/~apilking/Math10560/) and a list of prerequisites from precalculus under [Preparation Precalculus](http://www3.nd.edu/~apilking/Math10560/) on our website. Slide and video solutions to the lectures are also available on our website under [Resources for Sections 01 and 06](http://www3.nd.edu/~apilking/Math10560/) on our website. After working through your homework, you should prepare for your quiz in tutorials by visiting the [Old Exams For Practice](http://www3.nd.edu/~apilking/Math10560/) link on our website. You should pick out the questions from the relevant sections (check under [Quiz Information](http://www3.nd.edu/~apilking/Math10560/) 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.

<table>
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<th>Exam Locations</th>
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<td>Time and Date</td>
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<tr>
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<tr>
<td>8-9:15 a.m.</td>
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<tr>
<td>Tue. Feb. 20</td>
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<tr>
<td>Sections 01, 02, 04, 05, 06</td>
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<td>Sections 03, 07</td>
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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 a violation of the honor code. Exams are closed book and are to be done completely by yourself with no help from others.
01/16 Tue. Orientation and course information
01/17 Wed. 6.1. Inverse Functions
01/19 Fri. 6.2*. The Natural Logarithmic Function

01/22 Mon. Catch Up
01/23 Tue. Quiz 1
01/24 Wed. 6.3*. The Natural Exponential Function
01/26 Fri. 6.4*. General Logarithmic and Exponential Function

01/29 Mon. 6.5. Exponential Growth and Decay
01/30 Tue. Quiz 2
02/01 Wed. 6.6. Inverse Trigonometric Functions
02/02 Fri. 6.8. Indeterminate Forms and L’Hospital’s Rule

02/05 Mon. 7.1. Integration by Parts
02/06 Tue. Quiz 3
02/07 Wed. 7.2. Trigonometric Integrals
02/09 Fri. 7.3. Trigonometric Substitution

02/12 Mon. 7.4. Integration of Rational Functions by Partial Fractions
02/13 Tue. Quiz 4
02/14 Wed. 7.4. Integration of Rational Functions by Partial Fractions
02/16 Fri. 7.5. Strategy for Integration

02/19 Mon. Review for Exam 1
02/20 Tue. Exam 1 (No Tutorial)
02/21 Wed. Return and discussion of Exam 1
(Topics discussed will appear on Quiz/WS 5)
02/23 Fri. 7.7. Approximate Integrals

02/26 Mon. 7.8. Improper Integrals
02/27 Tue. Quiz 5
02/28 Wed. 8.1. Arc Length
03/02 Fri. 9.2. Direction Fields and Euler’s Method

03/05 Mon. 9.3. Separable Equations
03/06 Tue. Quiz 6
03/07 Wed. 9.5. Linear Equations
03/09 Fri. 11.1. Sequences

03/12 Mon. Spring Break
03/13 Tue. Spring Break
03/14 Wed. Spring Break
03/16 Fri. Spring Break
03/19 Mon.  11.2. Series
03/20 Tue.  No Tutorial
03/21 Wed.  Review for Exam 2
03/22 Thur.  **Exam 2**
03/23 Fri.  Return and discussion of Exam 2
            (Topics discussed will appear on Quiz/WS 7)

03/26 Mon.  11.3. The Integral Test for \( p \)-series.
03/27 Tue.  Quiz 7
03/28 Wed.  11.4. The Comparison Tests
03/30 Fri.  Easter Break

04/02 Mon.  Easter Break
04/03 Tue.  Quiz 8
04/04 Wed.  11.5. Alternating Series
04/06 Fri.  11.6. Absolute Convergence and the Ratio and Root Tests

04/09 Mon.  11.7. Strategy for Testing Series
04/10 Tue.  Quiz 9
04/11 Wed.  11.8. Power Series
04/13 Fri.  11.9. Representations of Functions as Power Series

04/16 Mon.  11.10. Taylor and Maclaurin Series
04/17 Tue.  Quiz 10
04/18 Wed.  11.11. Applications of Taylor Polynomials
04/20 Fri.  10.1. Curves Defined by Parametric Equations

04/23 Mon.  Review for Exam 3
04/24 Tue.  **Exam 3**  (No Tutorial)
04/25 Wed.  10.2. Calculus with Parametric Curves
04/27 Fri.  10.3. Polar Coordinates

05/30 Mon.  10.4. Areas and Lengths in Polar Coordinates
05/01 Tue.  Review worksheet.
05/02 Wed.  Review for Final

05/08 Tue.  **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. Although most have been discussed with university administrators, it seems that changes in exam schedules and the timing of Dart openings may not be possible. However, I hope that some forewarning will mean that you will be forearmed.

**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.

- 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.

- Exam 3 also coincided with the opening DART time for many students in the course in Spring 2013 as it did for many Spring semesters. Although we have discussed this with administrative officials, there is no guarantee that this will not be the case this semester. For a lot of students, taking time out from their exam to complete the process was distracting and broke their concentration. For some it was upsetting because they could not get into the classes they wanted. If your DART time occurs during exam 3 this semester, we will not deny you the opportunity to sign up for your courses, however we strongly advise that you wait until your exam is over to sign up.

- 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.
• Students who get a failing grade on an exam are invited to coaching sessions where they can get help on improving their grade. An invitation with information is sent after each exam to these students. For those who attended these sessions on a regular basis, they were very beneficial. Please watch out for these e-mails and make sure you attend these sessions on a regular basis if you need to.

• 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.

• 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, it is essential to get help if you have a low grade. As mentioned above, starting your study a few days before the exam is not a good strategy, so make sure you attend help sessions over a number of weeks. If you fail an exam, you will be invited to attend coaching sessions, otherwise make sure you set by time each week to attend one of the help sessions listed below.

• 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.
• Mathematica worksheets under [Lectures](#) (must download free Mathematica software under Software Downloads on the [OIT Website](#)).

Help See website for more details.
• Office Hours: Your instructor and tutor will announce office hours in class; [Help Available]

• Math 10560, Calculus Help Room (walk in), run by the teaching assistants for the course, Mon. and Wed., 6-7 p.m. : [Help Available]

• 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 website for details; [Help Available]

• Sunday Night Coaching Program, A program to help you identify your problems and maximize your grade if you perform poorly on an exam; [Sunday Night Coaching Program]

• Exam Reviews, The night before each exam, one of the instructors will hold a walk in review/Q&A session; [Exam Reviews]