

## Information for Students in Math10560, Spring 2024

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

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### Teaching Assistants: Tutorial - MATH 12560

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**Text:** Stewart, *Single Variable Calculus*, Ninth 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 recommended 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 10 and Chapter 11. The topics are logarithmic and exponential functions, techniques of integration and applications, an introduction to differential equations, parametric equations, polar coordinates, infinite sequences and series and power series. Details of the order in which topics are presented are given in the attached day by day schedule.

**Preparation for Class and Tutorials:** 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, click on the following link on the webpage; [Lecture Notes and Videos](#), for a list of prerequisites from precalculus, click on [Precalculus Preparation](#). After working through your homework, you should prepare for your tutorials by visiting the [Old Exams For Practice](#) link on our website. Practice questions for each quiz are listed on the website 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. 20	8-9:15 a.m. Thur. Mar. 21	8-9:15 a.m. Tue. April 23	1:45-3:45 p.m. Tue. May 07

Exam Locations have not yet been fully determined, they will appear on the website under **Exams: Time/Date/Location** when the information is available.

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 13 tutorials in all, the first is a course-information/lecture session and a review is scheduled for the tutorial in the last week of classes. All other tutorials will have a quiz and group activities. All tutorials with a quiz and group activities will be worth 10 points. The review tutorial in the final week of classes will also be worth 10 points, which will be awarded for attendance and participation. Tutorials count for a total of 100 points toward your final grade. **There will be no tutorials on the day of a Tuesday midterm exam.** You will find a list of material to be covered in quizzes on our website under [Quiz Information](#). To prepare for quizzes, please look up old exam questions on the relevant topics from our website [Old Exams For Practice](#). Our statistics show that preparing for tutorials each week by working through old exam questions and reflecting on the results of your quiz 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 and has documentation showing that they have an excused absence will be given a make-up exam. Students who do not have an excused absence may be allowed take a make-up exam for a credit of 90% of the points they score on the make-up (the second time you miss an exam without an excused absence, you will get a grade of zero for the exam). Please be aware that travel plans, sleeping in, defective alarm clocks, etc. are not considered to be a valid reasons for an excused absence.
- If you have a valid excuse (illness, excused athletic absence, etc.) for missing an exam, please have your advisor arrange to have an official e-mail sent to your instructor and Professor Pilkington as soon as possible.

- If you miss an exam, whether you have an excused absence or not, please let your instructor know of your intention to take the make-up exam as soon as possible.
- The tutor in charge of administering the make-up exam will contact you in the days following the exam. The tutor will ask for a copy of your class schedule, in order to find a common time for the make-up. Failure to supply the copy of the class schedule, will result in a grade of zero for the exam.
- If there are a large number of people for the make-up exam, it may be impossible to find a common time to schedule a proctored make-up. Priority in scheduling will be given to students who have an excused absence. If you do not have an excused absence and your class schedule conflicts with the only make-up time available, the instructor will substitute 90% of the average of your other grades for that exam. Make up exams may have a different format than the midterm exams.

**Missed Tutorials** A student who misses a tutorial will receive zero points for that tutorial unless he or she has written permission from your advisor or 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 or 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 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 online tutors or other students complete your homework is a violation of the honor code and also quite foolish. Your homework provides you with an opportunity to test your knowledge and find your own weaknesses in a low stakes environment. You should start each homework well before the deadline and if you discover that there are some problems that you are having trouble with, take them to the math help room or your instructor's office hours. Exams are proctored and must be completed without the aid of a calculator or formula sheet (other than the one provided, if applicable). Consulting with formula sheets or copying from other students during exams or while

waiting to hand in your exam is considered a major violation of the honor code and usually results in a grade of 0 for the exam.

## Schedule    Math10560    Spring 2024

01/16	Tue.	Course Information.
01/17	Wed.	6.1. Inverse Functions
01/19	Fri.	6.2*. The Natural Logarithmic Function
01/22	Mon.	6.3*. The Natural Exponential Function
01/23	Tue.	Quiz 1, Topics 6.1, 6.2*
01/24	Wed.	6.4*. General Logarithmic and Exponential Function.
01/26	Fri.	6.5. Exponential Growth and Decay
01/29	Mon.	6.6. Inverse Trigonometric Functions
01/30	Tue.	Quiz 2, Topics 6.3*, 6.4*, 6.5
01/31	Wed.	6.8. Indeterminate Forms and L'Hospital's Rule
02/02	Fri.	7.1. Integration by Parts
02/05	Mon.	7.2. Trigonometric Integrals
02/06	Tue.	Quiz 3, Topics 6.6, 6.8, 7.1
02/07	Wed.	7.3. Trigonometric Substitution
02/09	Fri.	7.4. Integration of Rational Functions by Partial Fractions
02/12	Mon.	7.4. Integration of Rational Functions by Partial Fractions
02/13	Tue.	Quiz 4, 7.2, 7.3, 7.4(1st half)
02/14	Wed.	7.5. Strategy for Integration
02/16	Fri.	7.7. Approximate Integrals
02/19	Mon.	Review for Exam 1
02/20	Tue.	<b>Exam 1</b> (No Tutorial)
02/21	Wed.	Return and discussion of Exam 1/Catch Up
02/23	Fri.	7.8. Improper Integrals
02/26	Mon.	8.1. Arc Length
02/27	Tue.	Quiz 5, 7.7, 7.8 + Topics from Exam 1
02/28	Wed.	9.2. Direction Fields and Euler's Method
03/01	Fri.	9.3. Separable Equations
03/04	Mon.	9.5. Linear Equations
03/05	Tue.	Quiz 6, Topics 8.1, 9.2, 9.3
03/06	Wed.	11.1. Sequences
03/08	Fri.	11.2. Series
03/11	Mon.	Spring Break
03/12	Tue.	Spring Break
03/13	Wed.	Spring Break
03/15	Fri.	Spring Break

03/18	Mon.	11.3/11.4. p-series (using integral test) and comparison test.
03/19	Tue.	Quiz 7, 9.5, 11.1, 11.2
03/20	Wed.	Review for Exam 2
03/21	Thur.	<b>Exam 2</b>
03/22	Fri.	Return and discussion of Exam 2/Catch Up
03/25	Mon.	11.4. The Comparison Tests
03/26	Tue.	Quiz 8, 11.3/11.4(part 1) + Topics from Exam 2
03/27	Wed.	11.5. Alternating Series
03/29	Fri.	Easter Break
04/01	Mon.	Easter Break
04/02	Tue.	Quiz 9, Topics 11.4, 11.5
04/03	Wed.	11.6. Absolute Convergence and the Ratio and Root Tests
04/05	Fri.	11.7. Strategy for Testing Series
04/08	Mon.	11.8. Power Series
04/09	Tue.	Quiz 10, Topics 11.6, 11.7
04/10	Wed.	11.9. Representations of Functions as Power Series
04/12	Fri.	11.10. Taylor and MacLaurin Series
04/15	Mon.	11.11. Applications of Taylor Polynomials
04/16	Tue.	Quiz 11, Topics 11.8, 11.9, 11.10
04/17	Wed.	10.1. Curves Defined by Parametric Equations
04/19	Fri.	10.2. Calculus with Parametric Curves
04/22	Mon.	Review for Exam 3
04/23	Tue.	<b>Exam 3</b> (No Tutorial)
04/24	Wed.	Return of Exam 3, Catch up/review
04/26	Fri.	10.3. Polar Coordinates
04/29	Mon.	10.4. Areas and Lengths in Polar Coordinates
04/30	Tue.	Review
05/01	Wed.	Review
05/07	Tue.	<b>Final Exam 1:45-3:45 p.m.</b>

**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 quizzes often contain problems that require material from previous sections in addition to 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 the you need to do this. (This mindset is not just important for Calculus II, but essential to any research or projects that you might undertake as an undergraduate or in your future studies.) 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 registration 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 registration time for many students in the course in Spring 2013 as it did for many Spring semesters. We have discussed this with administrative officials, hopefully it will not be an issue this semester. For a lot of students, taking time out from their exam to complete the registration process was distracting and broke their concentration. For some it was upsetting because they could not get into the classes they wanted. If your registration 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.
- 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.
- 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 and videos for each lecture, [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), run by graduate students including the teaching assistants for this course. [Help Available](#).



- Learning resource center, tutoring and collaborative learning sessions, check website for details; [Help Available](#).
- Exam Reviews, The night before each exam, one of the instructors will hold a walk in review/Q&A session; [Exam Reviews](#).