

**Technical Calculus I - Fall 2017**  
**Math 2123-62865**  
**MWF 8:30am - 9:20am**  
**Room: HSCI 004**

Instructor: Scott Hader  
Office: MSCS 409  
Office Hours: TO BE ANNOUNCED IN CLASS  
MLSC Hours: TO BE ANNOUNCED IN CLASS  
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**Basic Information**

My notes and practice problems should be sufficient material for the class. If you want to buy the textbook, the official listing is the 5e (fifth edition) of Technical Calculus with Analytic Geometry by Peter Kuhfittig. A cheaper online version is also available through the bookstore.

In this class we will cover standard equations like lines, parabolas and circles. Then we'll move on towards the crucial concept of limits, which will be probably be the the most challenging topic that you've faced up until this point. It will require a lot of patience on both our parts to make sure we understand limits. After limits, we'll be ready to talk about differentiation (taking derivatives of functions), which is a very large topic that has a lot of practical applications that you may find interesting. For instance, the derivative of an object's position at any point in time represents the velocity of that object. For the second half of the semester, we'll be talking mostly about integration (antiderivatives, or the reverse of taking the derivative). This also has a lot of practical applications. If you have the velocity function of an object, then the antiderivative of the function, or integral of the function, will tell you the object's position at any given time.

Technical Calculus I will use a lot of algebra. Please get the help that you need if you find gaps in your algebraic knowledge. This means either asking me, asking a friend, asking someone in the MLSC, or using the internet to clear up any questions you may have. You should expect to spend a lot of time on this class. To succeed, you will have to take responsibility for your own learning. It is essential that you attend regularly, do not get behind or attempt to cram for exams, work hard at understanding the material and solving the problems, and seek help in a timely fashion if you cannot

understand a concept or solve a problem despite your best efforts. There is too much material for me to be able to cover every detail in class, but you are responsible for learning everything in each of the sections that is discussed in class.

## Grades

Your grade in this class will be based on your performance on three preliminary exams, a final exam, and in-class quiz scores. Quizzes will be based on lecture material and practice problems that I will post at least once per week. You may also earn an attendance bonus. The weights of these categories are as follows:

EXAM 1 15%  
EXAM 2 15%  
EXAM 3 15%  
FINAL EXAM 25%  
QUIZZES 30%  
ATTENDANCE BONUS UP TO 2%

There will be three preliminary exams. My plan for them is as follows:

Exam I: Friday, September 22

Exam II: Friday, October 27

Exam III: Friday, December 1.

Final Exam: 8:00AM, Friday, December 15.

The final exam will be comprehensive. It will be held in our classroom (HSCI 004) at 8:00AM-9:50AM on Friday, December 15. There will be something like 14 quizzes in class given on Fridays of non-test weeks and due Wednesdays of test weeks. The quiz grade will be based on the best ten of these. Attendance will be taken in most class periods, beginning on Monday, August 21st and ending on Friday, December 8. If you miss no more than three class periods during this time then you will receive a 2% attendance bonus. This will be reduced by 1% for each absence beyond the second, to a minimum of 0% for four or more absences. If you are sick, stay home. That's why I'm allowing you to miss two classes. If you're using a cell phone during

class instead of paying attention, you may not receive attendance credit for that day.

A total score of at least 90% will ensure an A, a score of at least 80% will ensure at least a B, a score of at least 70% will ensure at least a C, and a score of at least 60% will ensure at least a D.

### **Calculators and Other Technology**

I will allow you to use graphing calculators for this class. You can check them out in the front office of the math department (MSCS 401). You may use them on quizzes and exams. However, work will be graded based on justification of your answers as well as the answers themselves. Sometimes you may need to explain in words how you solved a problem. Except in cases of emergency, during class (and on exams), you may not use cell phones, tablets, laptops, PCs, televisions, boom boxes, etc. Part of the attendance grade is paying attention during class instead of staring at your phone. It is fine to use technological aids such as calculators, spreadsheets, and computer algebra systems (like Maple, Mathematica, MATLAB, Sage, and Wolfram Alpha) to assist you in solving mathematical problems, as long as you do so appropriately. Math requires some patience. Use the class notes and examples from the text to help you with your homework.

### **What I'm Looking for When I Read Your Work**

Part of my job in this class is to give you feedback to assist you in making progress. Another part is to assess your knowledge and skills so that I can eventually assign you a grade. I'm not interested in the final answers to the problems; I can already solve them for myself. What I am interested in is how you arrived at your answer and whether that process demonstrates a sound grasp of the skills that you are supposed to have and an accurate understanding of the underlying concepts. If these things are taken care of then the final answer will be correct as a matter of course. Consequently, always show your work in sufficient detail that I can find what I'm looking for, and don't try asking for more credit because "the answer is right!" Think about what you're writing and make sure that you really mean it. Don't, for example, use the symbol '=' to mean 'and the next step is.' That symbol means several things: 'is equal to,' 'should be equal to,' 'is defined as' and you should only use it when you mean one of those things. To express things that don't fit easily into formulas, consider using words, sentences even, as well as pictures, tables, and whatever else seems likely to be effective.

## **Missed Work**

The Mathematics Department suggests a policy on missed work, which I will be following in this class. Here it is in full:

- Every student shall be offered reasonable accommodation in the event that he or she misses a major assessment activity for a valid and documented reason.
- Appropriate documentation shall be provided by the student in a timely fashion to support his or her request for accommodation.
- Major assessment activities are those such that a zero on that activity could reasonably be foreseen to impact the student's grade substantially; this category includes, but is not limited to, exams.
- Valid reasons include official University activities, activities associated with military service, illness, family emergencies, mandatory court appearances, and any other events of comparable gravity.
- Reasonable accommodation means that the student will be given the opportunity to earn a grade on the assessment activity that is based on criteria as similar as possible to those used to grade his or her classmates. This opportunity should normally be made available in a timely fashion.

What all this means is that if you have to miss a quiz or exam for a serious reason, and you are able to provide acceptable documentation verifying that reason, then you will be allowed to make up the missed work. If you have a scheduled University activity then it is normally best to do this beforehand. I try to be flexible and fair, so if you encounter an unusual circumstance then it is worth at least asking about make-up work, although I might say no.

## **Brightspace and Email**

I suggest that you add a little basic information to your Brightspace profile, particularly if you are interested in studying with other students in the class. I use email to contact individual students and the class as a whole. This means that you must check your OSU email regularly. If you prefer to use another email address then you should arrange to have your OSU email forwarded to that address.

### **Miscellaneous Information**

You should read the syllabus attachment for Fall 2017, which I shall post on Brightspace. This is a document that outlines some of the general academic policies of the University, as well as listing important dates. You are subject to the University's policy on academic integrity. Information about this policy may be reached from the Division of Academic Affairs web page at <http://academicaffairs.okstate.edu>.

### **Final Note**

I really want you to succeed in this class. Please try to find a consistent study routine that works for you. Everyone needs help in math sometimes. If you need help, get it. The MLSC (5th floor of the library) is open 9am-9pm MTWR, 9am-5pm F, and 1pm-9pm Sun. I'm holding two office hours there per week (TO BE ANNOUNCED IN CLASS). The book provides numerous examples to study from. So you have several resources available to facilitate your learning. Please make use of them.