

<b>Math 2123 – Section 1</b> <b>MWF 8:30-9:20</b>	<b>Calculus for Technology I</b> <b>Syllabus &amp; Outline</b>	<b>Oklahoma State</b> <b>Fall 2010</b>
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**Instructor:** H.E. Bible  
**Office:** MSCS 427    **Phone:** 744-5791    **Email:** hebible@math.okstate.edu  
**Office Hours:** Mon & Wed 9:30-12:30    Others by appointment

### Course Objectives

- 1) To understand the definitions and principles in elementary calculus (primarily differentiation and integration)
- 2) To understand applications of calculus related to areas of technology
- 3) To further develop necessary mathematical skills for continued study

### Textbook/Graphing Calculator

- **Technical Calculus with Analytic Geometry** (Fourth Edition) by Allyn J. Washington. Addison-Wesley College Publishing, 2002. This is the same textbook used in Tech Calc II so you won't have to buy a book for that course.
- A scientific or graphing calculator is recommended for this course. I will be using a TI-83 Plus for class demonstrations. You may check out a graphing calculator free of charge from the Math Department (401 MSCS) for use during the semester.

### MLRC: Mathematics Learning Resource Center

The MLRC is an excellent resource for this course. You are strongly encouraged to take full advantage of its services. You should go there regularly to do your homework and to use the materials that we have made available to you. The MLRC is currently located on the 4<sup>th</sup> floor of the Classroom Building.

### Attendance Policy – 4 / 8 Rule

How well a student performs in a course is highly correlated with his/her attendance. Because of the importance your instructor places on our class sessions as active learning opportunities, attendance is a required element of this course.

The 4 / 8 Absence Rule will be strictly enforced.

- More than four (4) absences make you ineligible for the Low Exam Replacement Policy.
- More than eight (8) absences earn an automatic F in the course.

In this course, there is no such thing as an excused absence. If you were not physically present for a class, then you were absent – no exceptions, no excuses. Absences due to University-sponsored activities and military training are also not excused. The attendance policy is liberal enough to accommodate an occasional absence without serious penalty.

Attendance will be recorded via an attendance sheet which will be distributed during class. It is your responsibility to make sure that you sign the attendance sheet during each class. Do not sign the attendance sheet for another student or ask another student to sign for you. This is a serious offense of academic fraud and will be treated as such – all your attendance will be null and void resulting in more than 8 absences and an automatic F in the course and you will be reported to the University Academic Integrity office for possible further sanctions.

Proper attendance also means arriving on time and remaining until the class is dismissed. It is your responsibility to arrive in class no later than 8:30. If you are late for whatever reason, please respect your classmates and do not interrupt the class session already in progress. Students attempting to enter the classroom late, after the lecture has begun, will be asked to leave. If your objective for attending a class is to simply sign the attendance sheet and leave early, then you are abusing the system. You will be counted as absent if you are late or leave early. Students who continue to attempt to enter late or leave early after being counseled will be reported to the Academic Integrity office and appropriate University policies will be applied.

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**Low Exam Replacement Policy**

If you make a low score on one of your hour exams, but make a higher percentage score on the final exam, it may be possible to replace that low exam score with your final exam percentage. This privilege is only applicable if you have four (4) or fewer absences. Only one exam score is eligible for this substitution.

**Quizzes**

There will be a total of twelve (12) short quizzes given during the semester – ten (10) regular quizzes and two (2) makeup quizzes. These quizzes will be worth 20 points each. Only your scores on the best ten (10) of these will be counted. That is, if you take all twelve, you can drop your lowest two scores. Your quiz score has a maximum value of 200 points – the equivalent of two 50-minute exams. Some of these quizzes will be announced closed-book, closed-notes given during the last 10-15 minutes of class. Others will be take-home quizzes. For credit on the take-home quizzes, you must be present when the quizzes are given out and when they are collected. There is the possibility of some will be unannounced or pop quizzes. Since two of these quizzes are considered makeups, **absolutely no additional makeups will given for any reason.** If you miss a quiz, you will receive a zero and it will be one of the two quiz scores you drop.

**A Note on Assigned Homework:** A list of homework problems corresponding to each section of the textbook is given on the attached sheet. These problems will not be submitted and graded. However, you should be sure to work these problems when the section is discussed in class to assess your knowledge of the material. These problems are also an excellent source for similar problems for quizzes and exams.

A student’s success in a math course is usually directly related to the amount of time and effort they put into the homework assignments. You are responsible for all assigned homework problems. **You are also responsible for all the textbook material in the sections we cover even though the material may not be specifically discussed in the lecture.** Thus, you should always begin your homework assignments by first carefully reading the sections in the book before you start working the problems. As a general rule, you should spend a minimum of 1-2 hours on each assignment. **I would strongly suggest you keep all your worked homework problems and worksheets organized in a spiral notebook or some type of folder.**

**Examinations**

There will be three (3) fifty-minute 100-point examinations and a 200-point comprehensive final examination. The exams will be closed-book, but you will be allowed to use a 3” by 5” note card. Baseball caps or hats with wide brims are not allowed during any exam or quiz. No cell phones or other electronic devices (other than a calculator, if allowed) should be visible during the exams. A schedule of the exams dates is given in the attached Class Schedule. Review these exam dates now and plan your semester schedule accordingly. Absolutely no makeup exams will be given for any reason. If you do miss an exam, the Low Exam Replacement Policy may apply provided you have 4 or fewer absences.

**Determining Final Grades**

There are 600 points possible in the course.

Quizzes	200 points max	} Can drop lowest one of these 3 exams and replace with percent on Final provided you do not have more than 4 absences. See Low Exam Replacement Policy.
Exam 1	100 points max	
Exam 2	100 points max	
Exam 3	100 points max	
Final Exam	200 points max	Comprehensive
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	700 points max possible	

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**Semester grades are not negotiable.** They will be assigned based solely on total points earned in the course subject to the Attendance Policy. The course grades will be firmly and equitably assigned with no curving based on total points in the table below.

700 - 630 points	100 - 90 %	A
629 - 560 points	89 - 80 %	B
559 - 490 points	79 - 70 %	C
489 - 420 points	69 - 60 %	D
419 - 0 points	59 - 0 %	F

### Course Website – Lecture Worksheets

We will use the OSU Online Classroom system - Desire2Learn (D2L) at <https://oc.okstate.edu> for the course website. The website will have valuable information pertaining to this course including lecture worksheets and quiz and exam solution keys. Most of these will be PDF files and you will need Acrobat Reader to view and print the files. **Before coming to class, you should print off the worksheets and bring them with you to help with taking notes and following along with the lecture. Coming to class without the proper printed worksheets is grounds for being asked to leave the classroom.**

The website is a required feature of the course. However, technical problems with the site or your inability to access it should not be used as an excuse for not fulfilling the course requirements. If you do have problems accessing the website, contact the IT Helpdesk. Furthermore, reviewing the worksheets online is not a sufficient substitute for actually attending the lecture and participating in class. Grades will NOT be posted on the website.

### Student Class Number

After the drop and add period ends and the roll is official, you will be given a **Student Class Number**. This number will consist of a sequential number indicating your alphabetical order in the class. The Student Class Number is very important and helpful in sorting and organizing the papers and recording grades. You must remember this Student Class Number and put it on all quiz and exam papers. If you fail to put your correct Student Class Number on a quiz or exam paper, you will receive a grade of zero on the paper.

### Graphing Calculator

A scientific or graphing calculator is recommended for this course. At a minimum you should have a calculator that will do logs and exponentiation. Remember that a calculator is just a tool. You should learn how to work the majority of the problems in this course without a calculator. Use the calculator only as a computational tool, not a crutch. Some calculators can perform calculus functions. You are not allowed to use these calculus functions of a calculator on quizzes and exams. All problems should be worked using the calculus techniques we discuss in class.

Use of the calculator may not be allowed on certain exams and quizzes. **It is your responsibility to learn how to operate your calculator properly.**

You may be able check out a graphing calculator free of charge from the Math Department (401 MSCS) for use during the semester. Your instructor will provide you with more details of this process in class.

### E-mail Guidelines

My e-mail address is listed on Page 1 (notice it is [@math.okstate.edu](mailto:@math.okstate.edu), not [@okstate.edu](mailto:@okstate.edu)). Feel free to e-mail me at anytime to set up an office appointment. Please use the following guidelines when you send me an e-mail:

- All e-mails must have a Subject Line or it automatically gets put in my SPAM folder and I'll never see it.
- All e-mails must include your Student Class Number.
- I will not conduct any course business via e-mail. Any questions or issues involving class policies or grades must be taken care of in person in my office.

### Office Hours

My office hours are listed above. I encourage you to take advantage of these hours for help with the course material and for any questions about your progress in the class. Since I have a lot of students, this time will be on a first-come, first-

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served basis. If your schedule conflicts with these times, feel free to talk to me before or after a class and we can arrange an appointment at a mutually acceptable time.

### **University Policies / Academic Integrity**

All university policies will be followed in this course. It is your responsibility to know and comply with all university policies and deadlines. The university has prepared a syllabus attachment document which contains important information. You can view the document at <http://osu.okstate.edu/acadaffr/aa/syllabusattachment-fall.htm> and on the course website.

OSU is committed to the maintenance of the highest standards of integrity and ethical conduct. This level of ethical behavior and integrity will be maintained in this course. A document outlining academic integrity issues specific for this class can be found in the Miscellaneous section of the course website. OSU's academic integrity policies can be viewed at <http://academicintegrity.okstate.edu> and on the course website.

### **Special Accommodations for Students**

If you have a need for special accommodations of any nature, I will work with you and Student Disability Services, 315 Student Union, to provide reasonable accommodations to ensure that you have a fair opportunity to perform in the class. Please advise me of such disability and the desired accommodations as soon as possible during the first week of class.

**If Student Disability Services has determined that you require extending testing time, you should meet with me as soon as possible to discuss several very specific requirements for this extended testing time.**

### **Proper Classroom Decorum**

Because of the size of this class and the small classroom, any activity that is noisy or disruptive affects a large number of students. You are expected to act in an attentive, respectful, non-disruptive manner in the classroom. Cell phones, pagers, iPods and other electronic devices are to be turned off and put out of sight before the beginning of class. Activities during the lecture such as visiting with other students, talking on the phone, texting, reading the newspaper, working on material for another class, sleeping, playing video games, etc. show contempt for the learning process. You will be asked to leave the class if your actions involve the activities above and/or your actions are distracting or inattentive.

You should always come to class with a copy of the printed worksheets. Viewing the worksheets using a laptop during the lecture is not allowed. Discuss this with me if you have a special need to use a laptop.

During the semester if another student is creating a disturbing or distracting environment for you, please let me know and I will correct the situation quickly.

### **How to be Successful in This Class**

- **Take the Responsibility for Your Own Success.** The wrong attitude, absences, and laziness are usually the main causes for failing this course. Devote the appropriate amount of time and effort needed to learn the material. Don't waste time making up excuses for not doing the required work.
- **Abide by All Course Rules and Policies.** Understand the policies for attendance and for no makeup quizzes and exams. Don't ask for or expect any exceptions to the attendance policy, makeup policy, or other course policies.
- **Work and Understand All the Homework.** Study (not just read) your lecture notes, worksheets and the textbook sections before you start the problems. Work the problems every day. Don't get behind or wait until the night before an exam or quiz to study.
- **Use the Course Resources.** Start a routine early in the semester of going to the MLRC regularly for help. Use your professor's office hours for help.

**Any changes in this syllabus or class schedule will be communicated to you in class by the instructor.**

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Week	Date	Section - Topic	HW Pages	Homework Problems
1	Aug 23 Mon	Course Introduction 1.1 Intro to Functions	6	1-19(odd)
	Aug 25 Wed	1.1 continued 1.2 Algebraic Functions	12-13	1-31(odd)
	Aug 27 Fri	1.3 Rectangular Coordinates 1.4 Graph of a Function	15 21-22	3-27(multiples of 3) 1-11(odd)
2	Aug 30 Mon	2.1 Basic Definitions 2.2 The Straight Line	31-32 36-37	1-35(odd) 1-37(odd)
	Sep 01 Wed	2.2 continued 2.3 The Circle	41-42	1-25(odd)
	Sep 03 Fri	2.4 The Parabola	46-47	1-25(odd)
3	Sep 06 Mon	<b>No Class – University Holiday</b>		
	Sep 08 Wed	2.5 The Ellipse	51-52	1-21(odd), 25
	Sep 10 Fri	2.6 The Hyperbola	57	1-19(odd)
4	Sep 13 Mon	2.7 Translation of Axes 2.8 The Second Degree Equation	60 63-64	1-8, 9-35(odd) 1-25(odd)
	Sep 15 Wed	Review		
	Sep 17 Fri	<b>Exam 1</b> (1.1 – 1.4, 2.1 – 2.8)		
5	Sep 20 Mon	3.1 Limits	76-77	1-11(odd), 25-43(odd)
	Sep 22 Wed	3.2 Slope of Tangent to a Curve	81	1-19(odd)
	Sep 24 Fri	3.3 The Derivative	85-86	1-23(odd)
6	Sep 27 Mon	3.4 Derivative - Inst Rate of Change	89-90	1-15(odd)
	Sep 29 Wed	3.5 Derivative of Polynomials	94-95	1-24
	Oct 01 Fri	3.6 Derivative of Prod & Quotients	98-99	3-39(mult of 3)
7	Oct 04 Mon	3.7 Derivative of Power of Function	104-105	1-35(odd)
	Oct 06 Wed	3.8 Diff of Implicit Functions	108	1,2,3-30(mult of 3)
	Oct 08 Fri	3.9 Higher Derivatives	111-112	1,2,3,3-33(mult of 3),38
8	Oct 11 Mon	4.1 Tangents and Normals	119-120	1-17(odd)
	Oct 13 Wed	4.2 Newton's Method	123	1-3,6-18(mult of 3)
	Oct 15 Fri	<b>No Class – Fall Break</b>		

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Week	Date	Section - Topic	HW Pages	Homework Problems
<b>9</b>	Oct 18 Mon	4.3 Curvilinear Motion	129	1-4,16
	Oct 20 Wed	Review		
	Oct 22 Fri	<b>Exam 2</b> (3.1 - 3.9, 4.1 - 4.3)		(Sat Oct 23 Homecoming)
<b>10</b>	Oct 25 Mon	4.4 Related Rates	132-133	2-21(mult of 3)
	Oct 27 Wed	4.5 Derivatives – Curve Sketching	139	3-27(mult of 3),30,37,38
	Oct 29 Fri	4.6 More on Curve Sketching	143	3-18(mult of 3)
<b>11</b>	Nov 01 Mon	4.7 Max and Min Problems	148-150	3-27(mult of 3)
	Nov 03 Wed	4.8 Differentials & Linear Approx	154	1-17(odd),25
	Nov 05 Fri	5.1 Antiderivatives 5.2 The Indefinite Integral	161 166	1,3,4,6,8,9-30(mult of 3) 1,3,4-36(even),37
<b>12</b>	Nov 08 Mon	5.2 continued 5.3 Area Under a Curve	171	1,4,7,8,12,14,17,18
	Nov 10 Wed	5.3 continued		
	Nov 12 Fri	5.4 The Definite Integral	174	1-31(odd) <b>Last Day to Drop a Course</b>
<b>13</b>	Nov 15 Mon	5.4 continued		
	Nov 17 Wed	5.5 Num Integration – Trap. Rule	177-178	3,4,6,8,9,10
	Nov 19 Fri	5.6 Simpson’s Rule	181	3,4,6,8,9,10
<b>14</b>	Nov 22 Mon	<b>Exam 3</b> (4.4 - 4.8, 5.1 - 5.6)		
	Nov 24 Wed	<b>No Class – University Holiday</b>		
	Nov 26 Fri	<b>No Class – University Holiday</b>		
<b>15</b>	Nov 29 Mon	6.1 Apps of Indefinite Integral	189-190	1,3,4,6,8,12
	Dec 01 Wed	6.2 Areas by Integration	195	1-27(odd)
	Dec 03 Fri	6.3 Volumes by Integration	200-201	1-15(odd),18,21,24,25
<b>16</b>	Dec 06 Mon	6.4 Centroids	207-208	1,4,8,12,16,20,24
	Dec 08 Wed	Review for Final		
	Dec 10 Fri	Review for Final		
	<b>Dec 15</b> <b>Wednesday</b>	<b>Final Exam 8:00-9:50 am</b> Note the time is 30 minutes earlier than the normal class		<b>Comprehensive Final.</b> The date and time of the Final are set by the University. They cannot and will not be changed.