MATH 2144, *Calculus I*, SPRING 2015, SECTION 004

Instructor: Ashwini Bhat
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Class Meeting: MWRF, 9:30AM-10:20AM, ES 111

Office Hours:
- R, 10:30AM-11:30AM, MSCS 421
- R, 3:00PM-5:00PM, MLSC

Online Classroom: oc.okstate.edu

WebAssign: webassign.net/login.html

OSU Syllabus Attachment: academicaffairs.okstate.edu/faculty-a-staff

Description: Calculus deals with functions that relate two varying quantities and the rules that govern the rates at which one of these quantities changes or accumulates with respect to the other. Understanding Calculus enables us to solve many problems in mathematics, science, and engineering. Our aim in this course is to ensure that you understand the concepts and tools of Calculus, that you master the skills required to use those tools, and that you will be able to apply those ideas to solve problems in many disciplines.

Prerequisites: A satisfactory score (minimum 70) on the ALEKS placement exam, or a grade of C or better in a college-level course in Trigonometry or Pre-Calculus.

Required Materials:
1. Textbook: *Calculus: Early Transcendentals*, 2nd edition, by Jon Rogawski, and
2. Online homework system WebAssign (http://www.webassign.net/login.html).
   - For Section 004 use WebAssign Class Key: **okstate 5879 2996**.

Expectations: All students are expected to participate and be involved in class asking and answering questions. During class, there should be **no use of cellphones or laptops**, as these can be distracting. Plan to spend, on average, eight hours *outside of class* on MATH 2144. This includes reading the text, working on problems, discussing questions with others, and making use of the SI sessions, office hours or the MSLC. Should you miss class, it is your responsibility to obtain lecture notes from a classmate, including announcements made in class.

Missing Work Policy: I will offer reasonable accommodation in the event that you miss a major assessment activity for a valid and documented reason, assuming documentation is provided in advance unless absolutely impossible. For a quiz or exam, you need to tell me as soon as you know there is a conflict and will be ineligible for a make-up if you do not.

Supplemental Instruction Sessions: These sessions are designed to help you succeed in this course and will begin in the second week of classes. I encourage you to attend weekly. The times will be determined within the first week of classes.

The Mathematics Learning Success Center (MLSC):. The MLSC is on the fifth floor of the Edmon Low Library, and is a great resource. The MLSC has tutors who work with students from Calculus I and can help answer your questions. Hours for Calculus I tutoring:
- Monday through Thursday from 1:00 PM until 9:00 PM,
- Friday from 1:00 PM until 5:00 PM,
- Sunday from 1:00 PM until 9:00 PM.

For more information, visit www.math.okstate.edu/mlsc, or call 405-744-5818 or 405-744-5688.

Grades: There are two schemes, for each student the one that results in the higher grade will be used:

	Scheme A	Scheme B
3 Hour Exams	15% each	10% each
Final Exam	25%	40%
Diff Gateway	5%	5%
WebAssign	10%	10%
Quizzes	15%	15%

Earning a score of 90% guarantees an A for the semester, 80% a B, 70% a C, and 60% a D.

Coursework: To learn Calculus you must practice.

WebAssign: You will have assignments typically due on Mondays, Wednesdays, Thursdays, and Fridays. For each problem you will have 3 chances to answer without any reduction in score, and then two additional chances with a reduction of 20% each time. I encourage you to keep a notebook for homework where you work out the WebAssign problems, or to print the assignments, work through the problems, and keep them in a binder.

Differentiation Gateway: This is designed to ensure that you master the skills of differentiation. It is a **no partial credit** quiz, meaning you earn all 5% of the final grade if you answer 6 of 7 questions correctly, otherwise no credit is earned. The Differentiation Gateway is scheduled for **Monday, March 2nd during class**. There will be additional opportunities for retakes for those who do not pass on the first attempt, but these will take place outside of class time.

Quizzes: There will be 9 in-class quizzes (excluding the Pre-Calculus Quiz and the Differentiation Gateway Quiz) of which I will take your best 7 scores, that is, I will drop your two lowest scores. These will take place on Fridays, excluding weeks during which an Hour Exam is scheduled. I will post suggested problems on D2L that I feel will help you prepare for the quizzes. However, quiz material will not be limited to the suggested problems.

Exams: There will be three Hour Exams in the evenings, and a comprehensive Final Exam for this course:

Exam 1	Wednesday, February 11 from 5:30 to 6:30
Exam 2	Wednesday, March 11 from 5:30 to 6:30
Exam 3	Wednesday, April 22 from 5:30 to 6:30
Final Exam	Tuesday, May 5 from 4:00 to 5:50

All of your exams will be in **MSCS 101**. For the exams you are allowed a **calculator** (described below) and a 3×5 **note card**.

Calculators: TI-83 and 84 models are permitted on the Hour Exams and the Final Exam. You may **not** use a TI-89, Nspire, or a calculator with a computer algebra system, wireless or internet capability, a QWERTY keyboard, or a camera. If you do not own an allowable graphing calculator, you may borrow one from the Math Department office without charge (located in MSCS 401). Graphing calculators can be a valuable tool, but not a substitute for your own conceptual understanding.

Academic Integrity: Oklahoma State University is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. Please see the OSU Spring 2015 Syllabus Attachment for more information.

You are encouraged to work and study together, however **all written and online work you hand in must be your own**. Copying someone else's solutions, letting others copy your work is prohibited. Do not cheat. Violations may subject you to disciplinary action including the following:

receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript (F!), and being suspended from the University.

Drops and Parachutes: The last day to drop a class without a W is **Tuesday, January 20th**. Within two weeks of the start of classes, Dr. Francisco may be able to parachute students to College Algebra, Trigonometry or Pre-Calculus without any grade penalty. You should talk to me immediately if you would be more comfortable in one of these classes.

Special Accommodations for Students. "If you think you have a qualified disability and need special accommodations, you should notify the instructor and request verification of eligibility for accommodations from the Office of Student Disability Services. Please advise the instructor of your disability as soon as possible, and contact Student Disability Services, to ensure timely implementation of appropriate accommodations. Faculty have an obligation to respond when the receive official notice of a disability but are under no obligation to provide retroactive accommodations. To receive services, you must submit appropriate documentation and complete an intake process during which the existence of a qualified disability is verified and reasonable accommodations are identified. Call 405-744-7116 or go to sds.okstate.edu." (OSU Spring 2015 Syllabus Attachment)

Schedule. The following course schedule is preliminary.

MONDAY	WEDNESDAY	THURSDAY	FRIDAY
Jan 12th **1** Introduction *Functions*	14th **2** §1.5 *Inverse Functions* §1.6 *Exponential and Logarithmic Functions*	15th **3** §2.1 *Limits, Rates of Change, and Tangent Lines* Due: §1.5, 1.6	16th **4** §2.1 *Limits, Rates of Change, and Tangent Lines* **Pre-Calculus Quiz**
19th **5** **University holiday**	21st **5** §2.2 *Limits: A Numerical and Graphical Approach* Due: §2.1	22nd **6** §2.2 *Limits: A Numerical and Graphical Approach*	23rd **7** §2.3 *Basic Limit Laws* **Quiz 1** Due: §2.2
26th **8** §2.4 *Limits and Continuity* Due: §2.3	28th **9** §2.5 *Evaluating Limits Algebraically* Due: §2.4	29th **10** §2.6 *Trigonometric Limits* Due: §2.5	30th **11** §2.7 *Limits at Infinity* **Quiz 2** Due: §2.6
Feb 2nd **12** §2.8 *Intermediate Value Theorem* Due: §2.7	4th **13** §3.1 *Definition of the Derivative* Due: §2.8	5th **14** §3.2 *The Derivative as a Function* Due: §3.1	6th **15** §3.3 *Product and Quotient Rules* **Quiz 3** Due: §3.2
9th **16** §3.4 *Rates of Change* Due: §3.3	11th **17** Review **Exam 1 §1.5–3.2**	12th **18** §3.5 *Higher Derivatives* §3.6 *Trigonometric Functions* Due: §3.4	13th **19** §3.7 *The Chain Rule* Due: §3.5, 3.6
16th **20** §3.7 *The Chain Rule*	18th **21** §3.7 *The Chain Rule* §3.8 *Derivatives of Inverse Functions*	19th **22** §3.9 *Derivatives of General Exponential and Logarithmic Functions* Due: §3.7, 3.8	20th **23** §5.8 *Exponential Growth and Decay* **Quiz 4** Due: §3.9

MONDAY	WEDNESDAY	THURSDAY	FRIDAY
23rd **24** §3.10 *Implicit Differentiation* Due: §5.8	25th **25** §3.10 *Implicit Differentiation* §3.11 *Related Rates*	26th **26** §3.11 *Related Rates* Due: §3.10	27th **27** *Differentiation Gateway Review* **Quiz 5** Due: §3.11
Mar 2nd **28** **Differentiation Gateway Quiz**	4th **29** §4.1 *Linear Approximation and Applications*	5th **30** §4.2 *Extreme Values* Due: §4.1	6th **31** §4.2 *Extreme Values*
9th **32** §4.3 *The Mean Value Theorem and Monotonicity* Due: §4.2	11th **33** *Review* **Exam 2 §3.3–4.2**	12th **34** §4.3 *The Mean Value Theorem and Monotonicity*	13th **35** §4.4 *The Shape of a Graph* Due: §4.3
16th **Spring Break**	18th **Spring Break**	19th **Spring Break**	20th **Spring Break**
23rd **36** §4.5 *L'Hôpital's Rule* Due: §4.4	25th **37** §4.6 *Graph Sketching and Asymptotes* Due: §4.5	26th **38** §4.6 *Graph Sketching and Asymptotes*	27th **39** §4.7 *Applied Optimization* **Quiz 6** Due: §4.6
30th **40** §4.7 *Applied Optimization*	Apr 1st **41** §4.9 *Antiderivatives* Due: §4.7	2nd **42** §5.1 *Approximating and Computing Area* Due: §4.9	3rd **43** §5.1 *Approximating and Computing Area* **Quiz 7**
6th **44** §5.2 *The Definite Integral* Due: §5.1	8th **45** §5.2 *The Definite Integral*	9th **46** §5.3 *The Fundamental Theorem of Calculus, Part I* Due: §5.2	10th **47** §5.4 *The Fundamental Theorem of Calculus, Part II* **Quiz 8** Due: §5.3
13th **48** §5.5 *Net Change as the Integral of a Rate* Due:§5.4	15th **49** §5.6 *Substitution Method* Due: §5.5	16th **50** §5.7 *Further Transcendental Functions* Due: §5.6	17th **51** §6.1 *Area Between Two Curves* **Quiz 9** Due: §5.7
20th **52** §6.1 *Area Between Two Curves* §6.2 *Setting Up Integrals: Volume, Density, Average Value*	22nd **53** *Review* **Exam 3 §4.3–5.7**	23rd **54** §6.2 *Setting Up Integrals: Volume, Density, Average Value* Due: §6.1	24th **55** §6.2 *Setting Up Integrals: Volume, Density, Average Value* §6.3 *Volumes of Revolution*
27th **56** §6.3 *Volumes of Revolution* Due: §6.2	29th **57** *Review* Due: §6.3	30th **58** *Review*	May 1st **59** *Review*

TUESDAY
May 5th
Comprehensive Final Exam
4:00pm–5:50pm, CLB 313
Due: Sample Final Exam

Final Note. Any changes to this syllabus will be communicated to you in class and posted on D2L.