STEM Division

MATH 2413-43290, 4 Credit Hours
Calculus I
Spring 2015

Classes are Tuesdays, Thursdays and Fridays
Classes meet 10:27 a.m. to 11:57 a.m. (11:30 to 12:04 and 12:38 to 12:52 on Fridays)
Room 105
Sunnyvale High School

Instructor:
Brad Payne

Contact Information:
Office: Room 105
Office Hours: Before and after school
Phone: 972-203-4600
Email Address: brad.payne@sunnyvaleisd.com

Course Description:
This course is a study of limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas. (4 Lec.)

Prerequisite:
MATH 2412 or equivalent.

Textbook and Other Course Materials:
Calculus by Briggs & Cochran, Addison-Wesley, 2011
ISBN: 0-321-71867-4
A graphing calculator is required for this course. A TI-83 or TI-84 Plus is recommended. Calculators may not be allowed on some assessments.

Student Learning Outcomes:
After completing this course, the student should be able to:
1. Develop solutions for tangent and area problems using the concepts of limits, derivatives and integrals.
2. Draw graphs of algebraic and transcendental functions considering limits, continuity, and differentiability at a point.
3. Determine whether a function is continuous and/or differentiable at a point using limits.
4. Use differentiation rules to differentiate algebraic and transcendental functions.
5. Identify appropriate calculus concepts and techniques to provide mathematical models of real-world situations and determine solutions to applied problems.
6. Evaluate definite integrals using the Fundamental Theorem of Calculus.
7. Articulate the relationship between derivatives and integrals using the Fundamental Theorem of Calculus.

Course Objectives:
After completing this course, the student should be able to:
1. Evaluate limits of functions using graphical, numerical, and analytical techniques.
2. Evaluate one-sided limits and infinite limits.
3. Use limits to determine the continuity or discontinuity of a function.
4. Find the derivative of polynomial, exponential, rational, trigonometric, and logarithmic functions using the power rule, product rule, quotient rule, and the chain rule.
5. Use implicit differentiation techniques.
7. Find the relative extrema of a function by using the first and second derivative tests.
8. Sketch functions by using tests for relative extrema, concavity, and points of inflection.
9. Find antiderivatives and indefinite integrals of polynomial, rational, inverse, and transcendental functions.
10. Determine the area under a curve by using Riemann sums or definite integration.
11. Use substitution techniques to find the integral of a function.

Grading Policy:
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<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Tests</td>
<td>50%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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</tbody>
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Grading Rationale:
A – 90 to 100
B – 80 to 89
C – 70 to 79
F – Below 70

Final Examination: A cumulative final exam is given at the end of the semester which will count for 25% of the overall semester average.

Policy on Missed Tests and Assignments: It is the responsibility of the student to contact the instructor about any missed assignments or tests. Late homework will be penalized 10% for problems submitted after the due date. **NOTE: Any test missed due to an unexcused absence will count as a zero and will not be allowed to be made up.** If a test is missed due to an excused absence, the student must provide a doctor’s note or other appropriate documentation for the absence in order to be able to take the test.

Attendance Policy:
You are expected to regularly attend all classes in which you are enrolled. Students have the responsibility to attend class and to consult with the instructor when an absence occurs.

If a student is unable to complete a course (or courses) in which he/she is registered, it is the responsibility of the student to withdraw from the course by the appropriate date. (The date is published in the academic calendar each year and in each semester’s class schedule). If a student does not withdraw, he/she will receive a performance grade, usually a grade of “F”.

Students who are absent from class for the observance of a religious holiday may take an examination or complete an assignment scheduled for that day within a reasonable time after the absence if, not later than the 15th day of the semester, the student notified the instructor(s) that the student would be absent for a religious holiday. Sec. 51.911 TX Educ. Code.
Incompletes:
An incomplete grade of “I” may be given when an unforeseen emergency prevents you from completing the work in a course. The “I” must be converted to a performance grade (A-F) within 90 days after the first day of classes in the subsequent regular semester. If the work is not completed after 90 days, the “I” is converted to a performance grade, usually an “F”. An Incomplete Contract is used to assign an incomplete grade and states the requirements for the satisfactory completion of the course. The Incomplete Contract must be agreed upon and signed by the Instructor, the student, and the division dean and submitted with the final grade report. When an Incomplete Contract must be submitted without your signature, the instructor must include a statement indicating that you are aware of and agree with the contract.

Obtaining Final Course Grades Using eConnect:
Final grade reports are no longer mailed. Convenient access is available online at www.econnect.dcccd.edu. Use your student identification number when you log into eConnect, an online system developed by the DCCCD to provide you with timely information regarding your college record. Your grades will also be printed on your Students Advising Report, which is available in the Admissions Office.

Drop Date:
Last date to drop with a grade of “W” is May 1st

Drop Policy:
To drop a class or withdraw from the college, students must follow the prescribed procedure. It is the student’s responsibility to drop or withdraw. Failure to do so will result in receiving a performance grade, usually grade of “F”. No drop or withdrawal requests are accepted by telephone. Students who drop a class or withdraw from the College before the semester deadline receive a “W” (Withdraw) in each class dropped. The deadline for receiving a “W” is indicated on the academic calendar and the current class schedule. If you are unable to complete this course, you must withdraw from it by April 16th. For more information, contact the Admissions/Registrar’s Office at 972-860-7167 (Room C 119.)

STOP BEFORE YOU DROP
Six Drop Rule: For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career, unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information on the 6 drop rule, you may access: https://www1.dcccd.edu/6drop.

Financial Aid:
If you are receiving Financial Aid grants or loans, you must begin attendance in all classes to be certified as attending class. In a Distance Learning Class, you must show participation in the class prior to the certification date by either e-mailing your instructor or logging on to eCampus. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds. Failure to contact the instructor will result in your name being submitted to the Financial Aid Office as a “non-attendee”. Student who fail to attend or participate after the drop date are also subject to this policy.

Repeating This Course:
Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any
of the Dallas County Community Colleges since the Fall 2002 Semester. See Third Attempt to Enroll in a Course at: http://www.dcccd.edu/thirdcourseattempt/

Students With Learning, Mental and Physical Disabilities:
Students requesting accommodation due to the presence of a disability must identify themselves in a timely fashion and demonstrate/document the need for accommodations through the Disability Services Office (DSO). For information regarding the rights and responsibilities of students with disabilities, contact DSO at (972) 860-8348 voice/TDD or email efcdso@dcccd.edu.

Student Email:
Legal privacy issues prevent your instructor from discussing your work or your grades on commercial e-mail accounts. If you wish to send your papers as attachments to an e-mail (and the instructor permits it), or if you have a question about your grade, you must open a student e-mail account. You may set up your account by going to http://www.dcccd.edu/netmail/home.html. The account is free.

Printing on Campus:
Printing in the Computer Lab (L-108), Library, and Learning Assistance Center will cost 5 cents a page. Students must bring a $1.00, $5.00, $10.00, or $20.00 bill to the lab to create an account. Accounts must be created before attempting to print. No change is made in the lab. Once the money is in the bill acceptor, it cannot be retrieved. Cash refunds are not possible. Accounts stay active as long as the account has value.

Standard of Conduct/Classroom Etiquette:
No food, drinks or tobacco products are allowed in Eastfield College classrooms. However; if your class is in a non-lab classroom your instructor may allow for food or drink.

CODE OF STUDENT CONDUCT: Web site address: http://www1.dcccd.edu/cat0506/ss/code.cfm
Responsibility
Each student shall be charged with notice and knowledge of the contents and provisions of the District’s policies, procedures, and regulations concerning student conduct. All students shall obey the law, show respect for property constituted authority, and observe correct standards of conduct. In addition to activities prohibited by law, the following types of behavior shall be prohibited.

Scholastic dishonesty shall constitute a violation of these rules and regulations and is punishable as prescribed by college policies. Scholastic dishonesty shall include, but not limited to, cheating on a test, plagiarism, and collusion.

“Cheating on a test” shall include:

- Copying from another student’s test paper
- Using test materials not authorized by the person administering the test.
- All forms of academic dishonesty, including cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion.
- Collaborating with or seeking aid from another student during a test without permission from the test administrator.
- Knowingly using, buying, selling, stealing, or soliciting, in whole or in part, the contents of an unadministered test.
- The unauthorized transporting or removal, in whole or in part, of the contents of the unadministered test.
- Substituting for another student, or permitting another student to substitute for one's self, to take a test.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
"Plagiarism" shall be defined as the appropriating, buying, receiving as a gift, or obtaining by any means another’s work and the unacknowledged submission or incorporation of it in one’s own written work.

"Collusion" shall be defined as the unauthorized collaboration with another person in preparing written work for fulfillment of course requirements.

Students should be aware of disciplinary actions for all forms of academic dishonesty, including cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion. Your College Catalog and the DCCCD Catalog contain the entire Student Code of Conduct. In this course, you will receive a grade of “0” on that particular assignment or test if you are guilty of cheating on assignments, tests, or plagiarism. Please do not put yourself in a situation that would result in such action, Academic dishonesty is a serious offense in college.

Campus Police:
In addition to providing general law enforcement on campus, the campus police respond to all emergencies. In any emergency situation, you can get immediate help by any of the following methods:

- call 911 on any campus extension
- use any red phone in the hallways, or any "blue light" call box in the parking lots
- call 972-860-4290 from any off campus extension

Sexual Harassment:
Eastfield College has a zero tolerance policy on sexual harassment. All students shall report complaints of sexual harassment informally to the college Human Resources Director or formally to the Vice Chancellor of Educational Affairs.

DCCCD Emergency Operation Procedures:
Visit http://video.dcccd.edu/rtv/DO/emergency_dcccd.wmv

Emergency & Inclement Weather Procedures:
In case of emergency (which may include power or air conditioning outages, fires, etc.) or inclement weather conditions, Eastfield students should listen to KEOM-FM Radio Station (88.5) as the primary media source. In partnership with the Mesquite Independent School District, Eastfield College Administration will notify KEOM immediately after a decision is made to cancel classes on any given day of inclement weather or for emergency purposes. Students may also monitor other local radio and television stations. The earliest an announcement may be broadcast on KEOM Radio is 6 a.m. Students may also refer to the Eastfield College web page www.eastfieldcollege.com for the Inclement Weather announcement under News/Features.

Family Educational Right and Privacy Act of 1974 (FERPA):
In compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), the College may release information classified as “directory information” to the general public without the written consent of the student. Directory information includes: (1) student name, (2) student address, (3) telephone numbers, (4) date and place of birth, (5) weight and height of members of athletic teams, (6) participation in officially recognized activities and sports, (7) dates of attendance, (8) educational institution most recently attended, and (9) other similar information, including major field of student and degrees and awards received. Students may protect their directory information at any time during the academic year. If no request is filed, directory information is released upon written inquiry. No telephone inquiries are acknowledged. No transcript or academic record is released without written consent from the student, except as specified by law.

ADDITIONAL RESOURCES
The Math Spot (http://www.eastfieldcollege.edu/as/Mathspot/index.asp) provides tutoring in Mathematics and Developmental Mathematics. Students are encouraged to take advantage of this service for additional help in their course work. The Math Spot is located in room C-201, and the phone number is 972-860-7062. Visit the link above for more information on tutors, hours of operation and policies.
EXEMPLARY EDUCATIONAL OBJECTIVES IN CALCULUS I

Calculus I (Math 2413), as part of the Core Curriculum satisfies the following exemplary educational objectives as set forth by the Texas Higher Education Coordinating Board:

Core Curriculum Intellectual Competencies:

Critical Thinking: Critical thinking embraced methods of applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies. Problem solving is one of the applications of critical thinking, used to address an identified task.

Component Area of Mathematics

The objective of the mathematics component of the core is to develop a quantitatively literate college graduate. Every college graduate should be able to apply basic mathematical tools in the solution of real-world problems. The exemplary educational objectives are the following course objectives:

C1. To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
C2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
C3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
C4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
C5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
C6. To recognize the limitations of mathematical and statistical models.
C7. To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understanding the connections to other disciplines.

The following math courses include the above exemplary educational objectives: Math 1314, 1316, 1324, 1325, 1332, 1333, 1348, 1414, 1425, 2305, 2415, 2318, 2320, 2342, 2412, 2414, 2418, 2420, 2413 or 2442 or higher level math.
COURSE OUTLINE:

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<td>2.1 – 2.7</td>
<td>Limits and Continuity</td>
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<td>Chapter 3</td>
<td>3.1 – 3.8</td>
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<td>Chapter 4</td>
<td>4.1 – 4.8</td>
<td>Applications of the Derivative</td>
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<td>Chapter 5</td>
<td>5.1 – 5.5</td>
<td>Integration</td>
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<td>Chapter 7</td>
<td>7.1 – 7.6</td>
<td>Logarithmic &amp; Exponential Functions, Inverse Trigonometric Functions</td>
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SYLLABUS REVISION:
The guideline in this syllabus may be changed, deleted, or amended any time by the instructor. The attached course outline is intended as an aid in helping you know your responsibilities for the semester. It is possible that some changes in the course outline or class policies will be made during the semester. Any changes that are made to the class policies or course outline will be announced in class.

Revised: 7/26/2012