

**Course Code & No. - Section:** Math 130 – Section 1  
**Course Title (Credits):** Calculus I  
**Term & Year:** Spring 2016  
**Course Ref. No. (CRN):** 10051

**Instructor:** Dr. Felicia Tam  
**Email:** ftam@sierranevada.edu  
**Office Hours:** by appointment

**Class Meeting Time:** MW 8:00 – 9:45 a.m.  
**Location:** TCES – 205 EPLAB

**Prerequisites:** Passing MATH 120 or permission from the instructor  
**Required Text:** Calculus of a Single Variable by Larson; 10th Ed.  
ISBN-13: 9781285060286

### Course Description

Limits and derivatives of algebraic, trigonometric, and transcendental functions of a single variable; includes parametric and polar equations. Techniques of differentiation and applications of the derivative. The anti-derivative and simple techniques of integration, the Fundamental Theorem of Calculus, and areas.

### Student Outcomes

Upon completion of this course, a student will be able to:

1. Understand the concepts of integration and differentiation such that these concepts can be illustrated graphically and applied to various processes
2. Model a phenomenon with an equation
3. Express the derivative and integral of an equation graphically, numerically, and algebraically
4. Explain the significance or utility of the derivative and integral
5. Understand how the concepts of limits is used to define derivatives and integrals
6. Apply technology (e.g. software) to problems involving calculus in an appropriate, productive way
7. Use calculus to reinterpret phenomena in nature

The Mathematical Association of America's (MAA) Committee on the Undergraduate Program in Mathematics (CUPM) in developing future mathematics curriculum has made the following preliminary recommendations:

- Students should achieve mastery of rich and diverse set of mathematical ideas and should experience mathematics as an engaging field with contemporary open questions.
- Students should be able to think analytically and critically, to formulate and solve problems, and to interpret their solutions. They should understand and appreciate the value and validity of careful reasoning, precise definition, and close argument.
- Students should have experience applying knowledge from one branch of mathematics to another and from mathematics to other disciplines.
- Students should be able to use a variety of technology tools.
- Students should be able to communicate mathematics both orally and in writing; they should be able to read mathematics.

### Tentative Schedule

**NOTE:** Course topics, exam date, and any other aspect of the class schedule are subject to change upon notification by the instructor. The Course Announcements section of the Moodle course website and in-class announcements will be used to alert students of changes to the syllabus.

DATE	CLASS TOPICS	CHAPTER
1/20	Preparation for Calculus	P
1/25	Preparation for Calculus	P
1/27	Limits	1.2
2/1	Limits	1.3
2/3	Limits	1.4
2/8	Limits	1.5
2/10	Quiz 1	P – 1
2/17	Differentiation	2.1
2/22	Differentiation	2.2
2/24	Differentiation	2.3
2/29	Differentiation	2.4
3/2	Differentiation	2.5
3/7	Differentiation	2.6
3/9	Midterm	1 – 2
3/21	Applications of Derivatives	3.1
3/23	Applications of Derivatives	3.3
3/28	Applications of Derivatives	3.4
3/30	Applications of Derivatives	3.5 & 3.6
4/4	Applications of Derivatives	3.7
4/6	Quiz 2	2 – 3
4/11	Integration	4.1
4/13	Integration	4.2
4/18	Integration	4.3
4/20	Integration	4.4
4/25	Integration	4.5
4/27	Logarithmic and Transcendental Functions	5.1, 5.2, 5.4
5/2	Review	
Final	Final	1 – 5

## Methods of Assessing Student Outcomes

Students will be assessed on the basis of their graded performance on three exams, one final, and a variety of assignments.

### Grading Policy

- The course is graded on a straight scale:

A	A–	B+	B	B–	C+	C	C–	D+	D	D–	F
93–100	90 – 92	87 – 89	83 – 86	80 – 82	77 – 79	73 – 76	70 – 72	67 – 69	63 – 66	60 – 62	0 – 59

unless a shift downward in the scale is appropriate (based on performance of the entire class).

- Grades on all work will be posted in Moodle. It is your responsibility to check the grades to make sure that there are no errors. Please contact your instructor if there is an incorrect or missing grade.

## Class Requirements

### Point summary

Quizzes (2 @ 100 pts. each)	200 pts.
Midterm	200 pts.
Final	300 pts.
Assignments (Rescaled based on % accrued for entire semester)	300 pts.
TOTAL	1000 pts

### Exams

There will be two quizzes and a midterm throughout the course of the semester. These exams will be taken during class time. Attendance is mandatory on exam days. If you have a conflict with another school-related activity, you must bring this to my attention **at least a week PRIOR to exam day** to schedule another time to take the test. If there is an emergency, I must be notified as soon as it is possible to do so in order to arrange a make-up. Failure to do so will result in a zero on the exam.

### Assignments

There will be a mixture in-class and take-home as well as required and suggested assignments given throughout the course. Students may, and are encouraged, to work in groups of up to three to complete the assignments, although ultimately, each student is responsible for learning all of the material. Groups may also help each other with broad understanding of the concepts that are contained in the assignments, but each group must turn in its own *independent* assignment. Work must be shown for each exercise. Required assignments will be graded holistically (i.e. based on demonstration of the overall comprehension of the topic covered, independent of minor computational errors) based on a few randomly selected problems. Grades will be based on the following scale:

Score	Description
20	<ul style="list-style-type: none"> <li>• All portions of the assignment are completed</li> <li>• It is obvious that a high-quality and in-depth effort was put into the assignment</li> <li>• If any answers or computations are incorrect they are minor mistakes that do not hinder understanding of the material</li> <li>• Interpretations are relevant and concise, and yet have enough information to convey an understanding of the material</li> <li>• It is obvious that no answers were simply copied from another student or group, although answers may be similar from students or groups that work together</li> </ul>
15	<ul style="list-style-type: none"> <li>• All portions of the assignment are completed or possibly only a few very minor components are not completed</li> <li>• A quality effort was put into the assignment but it may lack some depth and understanding</li> <li>• There are at least one or a few errors that result from a misunderstanding of the material</li> <li>• Interpretations are mostly relevant but there may be some lack of understanding of the material</li> <li>• It is obvious that no answers were simply copied from another student or group, although answers may be similar from students or groups that work together</li> </ul>
10	<ul style="list-style-type: none"> <li>• The assignment is most likely not completed</li> <li>• The effort put into the assignment cannot be described as quality work</li> <li>• There are at least several errors that result from a misunderstanding of the material</li> <li>• Interpretations are frequently irrelevant and there is often a misunderstanding of the material</li> <li>• It is obvious that no answers were simply copied from another student, although answers may be similar</li> </ul>
5	<ul style="list-style-type: none"> <li>• The assignment is not completed</li> <li>• The effort can be described as minimal and half-hearted</li> <li>• There are multiple errors that result in a misunderstanding of the material</li> <li>• Interpretations are mostly irrelevant and there is a clear misunderstanding of the material</li> <li>• It is obvious that no answers were simply copied from another student, although answers may be similar</li> </ul>
0	<ul style="list-style-type: none"> <li>• The assignment was not turned in or was copied from another student or group</li> </ul>

### Attendance Policy

Attendance will be recorded but will not directly affect your grade. However, if you miss a class in which an in-class assignment is given, you will not be able to make it up.

### Keys to Success

- **Come to Every Class Prepared!** Read the assigned chapters (which will be posted on Moodle) prior to class, and ask questions about material that was difficult when necessary.
- **Keep Up with the Work!** Calculus can be a very difficult subject in which new topics often build on older ones, it's imperative that you keep up with all the assignments.
- **Form Study Groups!** Working with others improves everyone's understanding. You can work in groups of up to 3 for assignments, and groups can help each other as well, as long as each group

turns in an *independent* assignment (i.e. discuss how to do the problems generally, but do not work out each step in detail with students outside of your group).

- **Make use of the Tutoring Center!** I have limited availability for office hours, therefore it is imperative that you get the most out of class and go to the Tutoring Center if you're having any trouble at all and need some assistance. The Tutoring Center, staffed with knowledgeable tutors, is located on the 3rd floor of Prim Library and is open for math drop-in tutoring at the posted times. There are also computers available for use there.

### Prim Library Resources

Using the library's resources effectively (not just Internet resources) contributes to developing each of SNC's core themes by exposing students to high quality academic resources, diverse opinions, new ideas, and a future that includes building on a liberal arts education. In this course, you will be expected to utilize the library's resources (either on-site or remotely) as you complete your assignments.

Insert a description of Prim Library resources that you expect your students to use here. For example:

Prim Library Resources for BIOL 401 and BIOL 415: Genetics and Lab include, but are not limited to:

1. Materials on reserve (ask for these at the circulation desk; for use inside Prim Library):  
Klug, W. S., Cummings, M. R., Spencer, C. A., Palladino, M. A., and Nickla, H. (2010) *Study Guide and Solutions Manual for Essentials of Genetics, 7/E*. Upper Saddle River, NJ: Benjamin Cummings.  
The Study Guide and Solutions Manual includes worked-out solutions for all problems in the text, as well as additional study activities. For optimal learning, please use this resource to check your work only after giving it a good faith effort!
2. Reference materials (for use inside Prim Library):  
King, R. C., Stansfield, W. E., and Mulligan, P. K. (2006) *A Dictionary of Genetics, 7<sup>th</sup> ed.* London: Oxford University Press.
3. Books (can be checked out):
  - a. In general, books related to genetics have Library of Congress Classification numbers ranging from QH 300 through QK. Books about genetic engineering have LCC numbers beginning with TP. However, you will find books related to our course with other LCC numbers, so search the Prim Library Catalog using key words related to your term paper topic.
  - b. Blum, D., Knudson, M., and Henig, R. M., eds. (2006) *A Field Guide for Science Writers, 2<sup>nd</sup> ed.* London: Oxford University Press. LCC number: T11.F52 2006. A detailed resource for writing scientific papers that will help you with voice, tense, and other nuances of scientific writing required for your lab reports.
  - c. Fedoroff, N. and Brown, N. M., (2004) *Mendel in the Kitchen*. Washington, D.C.: Joseph Henry Press. LCC number: TP 248.65.F66 2004. Written by a biologist, this book has much more detail from a scientist's perspective about the controversies surrounding GM foods than *Tomorrow's Table*.
4. Electronic databases (for peer-reviewed research articles, reviews, newspaper and magazine articles): Electronic databases most likely to include articles related to your term paper topics are EBSCO: Academic Search Premier, Environment Complete, General Science Collection, GreenFILE, Health Source, Newspaper Source, and TOPICsearch; BioOne; and GREENR.
5. Hardcopy periodicals: Prim Library has current subscriptions for Science, New Scientist, Science News, and National Geographic Magazine. Any of these are likely to have articles on your term paper topic. Full-text articles from many more periodicals are available through the electronic databases.
6. Lib Guides: <http://Libguides.sierranevada.edu> These web pages contain instructions about how to use resources available at Prim Library, how to evaluate the appropriateness of information from the Internet for a research paper, how to cite sources, and other topics related to finding and using information.

## **Sanctions for Cheating and/or Plagiarism**

### **The Honor Code**

The faculty of SNC believes students must be held to high standards of integrity in all aspects of college life in order to promote the educational mission of the College and to encourage respect for the rights of others. Each student brings to the SNC community unique skills, talents, values and experiences which, when expressed within the community, contribute to the quality of the educational environment and the growth and development of the individual. Students share with members of the faculty, administration and staff the responsibility for creating and maintaining an environment conducive to learning and personal development, where actions are guided by mutual respect, integrity, responsibility and trust. The faculty and students alike must make diligent efforts to ensure high standards are upheld by their colleagues and peers as well as themselves. Therefore faculty and students accept responsibility for maintaining these standards at Sierra Nevada College and are obligated to comply with its regulations and procedures, which they are expected to read and understand.

### **Consequences of Violating the Student Honor Code**

SNC students and faculty share the responsibility for maintaining an environment of academic honesty. Thus, all are responsible for knowing and abiding by the SNC Faculty/Student Honor Code published in the current SNC Catalog. Faculty are responsible for presenting the Honor Code and the consequences of violating it to students at the start of their classes AND for reporting all incidences of academic dishonesty to the Provost. Students are responsible for knowing what constitutes CHEATING, PLAGIARISM and FABRICATION and for refraining from these and other forms of academic dishonesty. Violations of the Honor Code become part of a student's academic record.

1<sup>st</sup> Offense: Student receives a zero for assignment/exam and counseling with faculty on the honor code, consequences for violating the honor code, and the value of academic honesty in learning.

2<sup>nd</sup> Offense: Student fails course and receives counseling with faculty on the honor code, consequences for violating the honor code, and the value of academic honesty in learning.

3<sup>rd</sup> Offense: Student is expelled.

### **Grading Policy**

Describe how you determine a student's grade in this class.

### **ADA Accommodations**

In accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, students with a documented disability are eligible for support services and accommodations. If a student wishes to request an accommodation, please contact the Director of Academic Support Services, Henry Conover, at (775) 831-1314 x7534, [hconover@sierranevada.edu](mailto:hconover@sierranevada.edu), office in Prim Library: PL-304.

### **The SNC Email System**

The SNC email system is the official communication vehicle among students, faculty members and administrative staff and is designed to protect the confidentiality of student information as required by the

Family Educational Rights and Privacy Act of 1974 Act (FERPA). Students should check their college email accounts daily during the school year.

Students have a right to forward their SNC e-mail to another e-mail account (for example, @hotmail or @gmail). However, confidentiality of student information protected by FERPA cannot be guaranteed for SNC e-mail forwarded to an outside vendor. Having email redirected does not absolve a student from the responsibilities associated with official communication sent to his or her SNC email account.

**The Sierra Nevada College Mission Statement:**

Sierra Nevada College graduates will be educated to be scholars of and contributors to a sustainable world. Sierra Nevada College combines the liberal arts and professional preparedness through an interdisciplinary curriculum that emphasizes entrepreneurial thinking and environmental, social, economic and educational sustainability.

**The Core Themes:**

Liberal Arts	Professional Preparedness
Entrepreneurial	Thinking Sustainability