Course Code & No. - Section:	Math 101 – Section 3
Course Title (Credits):	Math Reasoning (3)
Term & Year:	Spring 2016
Course Ref. No. (CRN):	10072
Instructor:	Dr. Felicia Tam
Email:	ftam@sierranevada.edu
Office Hours:	by appointment
Class Meeting Time:	MW 10:00 – 11:15 a.m.
Location:	TCES – 205 EPLAB
Prerequisites (from Catalog)**:**	Passing MATH 090 with a "C" or better, or meeting the College's entrance requirements for mathematics
Required Text	None
Required Computational Resources	Wolfram|Alpha and Spreadsheet Program (Excel, Open Office, Numbers, or Google Sheets)

Course Description

Mathematical ways of thinking and an overview of many areas of mathematics. Included are parts of algebra, geometry, graph interpretation, probability, statistics, and topology. Emphasis on problem solving. Interesting geometric puzzles and logic problems. Intended to hone a student's reasoning and critical thinking abilities. Prerequisite: Passing MATH 090 with a "C" or better, or meeting the College's entrance requirements for mathematics.

Student Outcomes

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

1. Think correctly about numbers and have the ability to discern the reasonableness of a particular solution.
2. Model a mathematical problem using various strategies in order to solve a problem.
3. Understand the many uses of mathematics in other disciplines (with emphasis on Environmental Science).
4. Gather, organize, display, and summarize data.
5. Use technology as a tool to solve mathematical models.
6. Discover when to use a linear, exponential, or power function from the given data.

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.*

WEEK OF	CLASS TOPICS
1/18	Math in Everyday Life
1/25	Math in Everyday Life
2/1	Spreadsheets; Equations and Problem Solving
2/8	Equations and Problem Solving; Quiz 1
2/15	Equations and Problem Solving
2/22	Functions and Graphs
2/29	Functions and Graphs
3/7	Midterm
3/14	>>>Spring Break<<<
3/21	Geometry
3/28	Geometry
4/4	Geometry
4/11	Quiz 2
4/18	Statistics
4/25	Statistics
5/2	Statistics
Final	Final Presentations

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.

Point summary

Quizzes (2 @ 100 pts. each)	200 pts.
Midterm	200 pts.
Final Project	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 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. **Late assignments will not be accepted** unless arranged with me **ahead of time**. 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	• All portions of the assignment are completed • It is obvious that a high-quality and in-depth effort was put into the assignment • If any answers or computations are incorrect they are minor mistakes that do not hinder understanding of the material • Interpretations are relevant and concise, and yet have enough information to convey an understanding of the material • 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

15	• All portions of the assignment are completed or possibly only a few very minor components are not completed • A quality effort was put into the assignment but it may lack some depth and understanding • There are at least one or a few errors that result from a misunderstanding of the material • Interpretations are mostly relevant but there may be some lack of understanding of the material • 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
10	• The assignment is most likely not completed • The effort put into the assignment cannot be described as quality work • There are at least several errors that that result from a misunderstanding of the material • Interpretations are frequently irrelevant and there is often a misunderstanding of the material • It is obvious that no answers were simply copied from another student, although answers may be similar
5	• The assignment is not completed • The effort can be described as minimal and half-hearted • There are multiple errors that result in a misunderstanding of the material • Interpretations are mostly irrelevant and there is a clear misunderstanding of the material • It is obvious that no answers were simply copied from another student, although answers may be similar
0	• The assignment was not turned in or was copied from another student or group

Attendance Policy

Attendance will be recorded but will not directly affect your grade.

Class Requirements

- You must bring a laptop with Internet access for Wolfram|Alpha and a spreadsheet program on it in order to participate in classes and take exams – it is very important that you accept this responsibility. The exams and homework require the use of these programs, so they are integral aspects of the class.
- It is ***strongly*** recommended that you take very good notes during class sessions and that you study these notes extensively for the exams. If you need tips on how to take good notes ask your instructor or visit the Office of Academic Services and Instructional Support.
- Laptops and cellphones ***absolutely*** may not be used in class for personal use such as observing videos, instant messaging, texting, checking e-mail, doing assignments for other classes or browsing the web. If you bring a laptop to class it must be closed unless approved by the instructor. Cellphones must be turned off and put away, meaning that they are not allowed to be put on the desks during class. Since attendance is not absolutely required for the course you have the freedom to laptop work and cellphones outside of the classroom during the class period. If you have to use your cellphone please excuse yourself from the class in a nondisruptive manner. Each violation of this rule may result in the loss of up to 50 points from the overall class score.

Keys to Success in Math Reasoning

- Have or develop an intellectual curiosity and open mind in how mathematics can be used in applied in real-world situations.
- Don't always think that ideas are important only if they apply to your life.
- Become proficient in Wolfram|Alpha and your spreadsheet program. Spend time exploring them on your own initiative.
- Attend office hours and review sessions as much as possible.
- Take great notes in class.
- Don't expect to understand all of the material right away in class.
- Be persistent. Don't be passive.
- Work with other students who are as serious (or more serious) than you about learning.
- Ask questions during the exams and final.
- Don't miss classes and/or blow off homework and in-class activities because these are major reasons why some students are likely to struggle in the class.

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, 7th 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, 2nd 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 evaluation 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.

1st 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.

2nd 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.

3rd 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, 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