

## MATH 101-1 (CRN 10118) COURSE SYLLABUS - Spring 2014

## MATH 101-2 (CRN 10151) COURSE SYLLABUS - Spring 2014

**Course Code & No. - Section:** MATH 101 – Sections 1 & 2  
**Course Title (Credits):** Math Reasoning (3)  
**Term & Year:** Spring / 2014  
**Course Ref. No. (CRN):** Sect 1: 10118, Sect 2: 10151

[Class Schedule Wk4](#)

**Instructor:** Bary W Pollack  
**Phone:** x7502  
**Email:** [bpollack@sierranevada.edu](mailto:bpollack@sierranevada.edu)  
**Office:** TCES 2nd floor  
**Office Hours:** See posted schedule at <http://snow.sierranevada.edu/~csci/SpringSchedule.htm>, and by appointment

**Sect 1: Class Meeting Time:** MW 2:30 - 3:45 pm  
**Sect 1: Location:** TC 215  
**Sect 2: Class Meeting Time:** MW 4:00 - 5:15 pm  
**Sect 2: Location:** TC 215

**Prerequisites (from Catalog):** none  
**Corequisites (from Catalog):** none

**Moodle Website:** <http://sncmoodle.sierranevada.edu/>  
**Bary's WWW:** <http://snow.sierranevada.edu/~csci/>  
**Mirror WWW:** <http://www.csci-snc.com>

### Course Description (from the catalog)

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.

### Methods of Assessing Student Outcomes

Homework problem solving assignments, Quizzes and Examinations, Classroom problem solving presentations, oral and written reports.

### Instructional Strategies

This course will use Content Area Reading, Lectures, Conferences, Modeling, Demonstrations, Examples, Seminars, Practical Exercises, Active Participation, Cooperative Learning, Case Studies, Oral and Written Student Presentations, Homework, Examinations.

### Required Texts and Materials

1. [\*Topics in Contemporary Mathematics, 10th Edition\*](#), Bello, Kaul, Britton; (c) 2014, Cengage Learning; ISBN-10: 1-133-10742-7, ISBN-13: 978-1-133-10742-2.
2. A fully functional laptop computer, including wireless capability, AC power adapter, optional mouse.

### Recommended Texts and Materials

None

### Attendance

Your performance on the homework assignments, tests, and exams determine your grade in this course. The easiest way to master the material is to attend class. Students who attend class regularly learn the material much more quickly, with far less effort, and earn higher grades.

### Research Project: none

### Class Requirements

All students are required to bring their textbook and a laptop computer to each class meeting (except the days of the Midterm Exam and Final Exam). In addition every day you will need writing paper and a pen or pencil.

### 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.

### 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

Your **final grade** is based on the number of points you earn according to the following schedule:

Activity	Points
Chapter Homework Assignments 14 @ 50 pts	700
Chapter Tests 6 @ 100 pts	600
Midterm Examination @ 200 pts	200
Final Examination @ 300 pts	300
Total:	1,800

The **Final Exam** will be given as per the *SNC Final Exam Schedule*. The Final Exam may not be at the same time or location as our regular class meeting. The date, time, room may change! Check with me before the end of the semester. Currently, our Final Exam is scheduled to be given in our regular classroom. The precise day, time, and location will be posted on the official SNC college website. Currently the Final Exam is scheduled for:

<b>MATH 101</b>	<b>Sect 1</b>	<b>May 12 - Mon</b>	<b>11:30-2:30 pm</b>
<b>MATH 101</b>	<b>Sect 2</b>	<b>May 9 - Fri</b>	<b>6:30-9:30 pm</b>

The letter grade that you receive in this class is based on the percentage you achieve. Your grade is a measure of **your** achievement/performance on the assignments, tests and the final exam – you are **not** “competing” with other members of your class. There is **no “class curve.”**

You may assume the following “grade breakpoints.” Generally, I do not give plus or minus grades.

A	90% - 100%
B	80% - 89.9%
C	70% - 79.9%
D	60% - 69.9%
F	0% - 59.9%

### Incompletes and In-Progress

No incompletes or in-progress grades (I/IP) will be awarded. If you must drop, please do so before the official withdrawal date.

### 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 email to another email account (for example, @hotmail or @gmail). However, confidentiality of student information protected by FERPA cannot be guaranteed for SNC email 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

## Policies and Procedures

These policies are presented in an effort to provide you with as much guidance as possible regarding how to deal with this course. Learning any new skill, like programming, requires the investment of a significant amount of time, energy, effort, and dedication. These policies will “level the playing field” so that all students have an equal opportunity to excel.

If you have a question about the proper interpretation of anything in this Syllabus or the Lecture Notes or anything presented during class, please discuss your question with me at the earliest opportunity. I will make every effort to ensure that all policies are clear, unambiguous, and fair.

## Contacting your Instructor

I pick up telephone voice mail at most once each day – so email is preferred. I will respond as promptly as possible. **You MUST place MATH101 first in the Subject line of every email message.** Otherwise your email may well be treated as “spam.”

## Important Notes

1. You should READ THE RELEVANT SECTIONS in the textbook **BEFORE** each lecture.
2. Even though I hold office hours each week, frequently it will be easier to communicate with me just before or after class – or via email. I usually respond to email within a few hours.

## Reading Assignments

Generally, I will **NOT** make explicit reading assignments in class. Look at the [Class Schedule](#) for information regarding what you should read and when you should read it. Please do the reading **BEFORE** coming to each lecture.

## Tests

I plan to give all tests during the **FIRST** lecture every other week.

Each test will last approximately one half hour.

Tests will cover material up through the lecture immediately before the test.

Tests will cover material discussed in class as well as readings from the Textbook.

Use the [Class Schedule](#) to gauge the material that will be covered on each test. You will be responsible for **both** the assigned textbook chapters (through the **end** of any chapter that is started) plus all material discussed/presented during lectures.

All tests will be “**closed book**.” During a test, you may **not** use any reference materials including your Textbook, your personal class notes, tape recorders, notebook computers, PDAs, smartphones, or anything else not provided by me explicitly for the test.

Cheating is grounds for **immediate failure** of this course and referral to the appropriate College authorities.

There will be **no makeup tests**. If you miss taking a test, you earn zero on that test.

### ***Midterm Examination***

All the rules for tests discussed above apply to the Midterm Examination, except:

The Midterm Examination will cover material drawn from the entire course up to the date of the Midterm;

There will be **no makeup Midterm Exam**.

### ***Final Examination***

All the rules for tests discussed above apply to the Final Examination, except:

The Final Examination will cover material drawn from the **entire** course;

The Final Examination will last approximately two hours;

If you do not take the Final Exam, you will fail the course;

There will be **no makeup Final Exam**;

The Final Examination will be given as per the official *SNC Final Exam Schedule*;

The Final Examination will **not** be returned to you – it will be kept by me.

### ***Homework Assignments***

**Homework assignments (for the previous week) are due by the end of the class on the FIRST lecture of the following week.**

**Homework assignments ONLY will be accepted IN CLASS.**

Late assignments will be accepted, but they will incur a **10% per day late penalty**. So, if you don't submit your homework assignment on Tuesday, the next opportunity to submit would be on the following Thursday and you'd immediately be penalized 20% – **two days late**.

It definitely is to your DISADVANTAGE to submit assignments early. I will NOT grade them early. And I will return them to you only after the assignment due date.

There will be no makeup homework assignments.

There will be no “extra credit” assignments.

### ***Group Work in General***

Collaboration among students – both within formal study groups and otherwise – is one of the very best ways to study, to learn, and to solve problems. I heartily **encourage** you to make every effort to work with other members of your class. However, although you may share ideas, concepts, understanding, etc., you still must develop your own individual solutions for each problem.

### ***Study Groups***

I **strongly encourage** you to **form study groups** for this class. At the very least, get the telephone numbers of a few of your classmates so that you can confer over the phone, if not in person, about difficulties, issues, interpretations, etc., that may arise during the course.

In any group, be sure that you are an **equal** member. This can be hard – don't be someone who knows all the answers or someone who leans on others to get you through the course.

### ***Getting Help***

If you need help on any of the course subject matter I invite you to ask questions in class. Additionally, you always can send me an email at [bpollack@sierranevada.edu](mailto:bpollack@sierranevada.edu). And, the services of the SNC Tutoring Center are available to you free of charge. The Tutoring Center is located on the Third Floor of the Prim Library.

### ***Guidelines for Submitting Homework***

Homework assignments should be submitted on paper. At the top of each page be certain to place the following:

**MATH 101 – Sect ## -- Homework # – First Name Last Name – Date – Page #**

Only use **one side** of a page. **Place a box** around the final answer for each problem. You **MUST** show your work. Exercises submitted without showing the work will earn zero points. Write/print legibly – if I cannot read your work, it will earn zero points. I do give partial credit for attempts at solutions and for incorrect solutions.

### ***Official Course Announcements and Notices***

Official information about lectures, assignments, tests and other class matters will be promulgated by posting them on our class Home Page. You are **required** to check our class Home Page **regularly**. You also should check your SNC campus email regularly. You are responsible for keeping yourself apprised of any changes and corrections to assignments or other course materials.

### ***Extra-Credit and Makeup Policies***

It is my policy **not** to allow students to submit “extra-credit” work. Your grade is based on the class assignments available to all students in the course. Similarly, my policy is **not** to provide “makeup” work for students who neglect to submit their assignments.

### **Technical Skills - Prerequisites**

#### ***Student Success***

The **prerequisites for MATH 101** are mastery of arithmetic and mathematics skills covered in high school.

*In **ALL** my courses, I assume that you know how to work with personal computers, **Microsoft Windows**, the **Internet**, and **email**. If your background is deficient, you should remedy this situation immediately.*

#### ***Remember***

This course will require your time and effort to succeed. There is **no “class curve”** for this course – you are evaluated on your **individual** efforts. My goal is to give everyone an “A” – and to feel comfortable that everyone here has mastered the subject matter.

**MATH 101 Class Schedule** (*subject to change, of course*)

All Tests will be closed notes and closed book(s) unless otherwise informed. There will be **no** “make-up” Tests. See our class webpage for details regarding exactly what is required for each homework assignment.

<b>W K</b>	<b>LECTURE DAY</b>	<b>SUBJECT(S)</b>	<b>ALL HOMEWORK IS DUE BY THE START OF CLASS ON MONDAY</b>
1	1/*, 22	<b>Course Introduction and Administrivia</b> <b>1. Problem Solving</b> 1.1 Inductive and Deductive Reasoning 1.2 Estimation: A Problem-Solving Tool 1.3 Graph Interpretation: A Problem-Solving Tool	
2	1/27, 29	<b>Chapter Test 1 – 8/29</b> <b>2. Sets</b> 2.1 Sets: A Problem-Solving Tool 2.2 Set Operations 2.3 Venn Diagrams 2.4 The Number of Elements in a Set	Homework 1 1/27
3	2/3, 5	2.5 Infinite Sets <b>3. Logic</b> 3.1 Statements 3.2 Truth Tables: A Problem-Solving Tool 3.3 The Conditional and the Biconditional 3.4 Variations of the Conditional and Implications 3.5 Euler Diagrams: A Problem-Solving Tool 3.6 Truth Tables and Validity of Arguments	Homework 2 2/3
4	2/10, 12	<b>Chapter Test 2 &amp; 3</b> <b>4. Numeration Systems</b> 4.1 Egyptian, Babylonian, and Roman Numeration Systems 4.2 The Hindu-Arabic (Decimal) System 4.3 Number Systems with Bases Other Than 10 4.4 Binary, Octal, and Hexadecimal Arithmetic	Homework 3 2/10
5	2/*, 19	<b>5. Number Theory and the Real Numbers</b> 5.1 Number Theory: Primes and Composites 5.2 Whole Numbers, Integers, and Order of Operations 5.3 Operations with Rational Numbers, Scientific Notation 5.4 Rationals and Irrationals as Decimals: Percents 5.5 Radicals and Real Numbers 5.6 Number Sequences	Homework 4 2/19
6	2/24, 26	<b>Chapter Test 4 &amp; 5</b> <b>6. Equations, Inequalities, and Problem Solving</b> 6.1 Solutions of First-Degree (Linear) Sentences 6.2 Graphs of Algebraic Sentences	Homework 5 2/24
7	3/3, 5	6.3 Sentences Involving Absolute Values 6.4 Quadratic Equations 6.5 Modeling and Problem Solving 6.6 Ratio, Proportion, and Variation	Homework 6 3/3
8	3/10, 12	<b>Midterm Examination</b> <b>8. Geometry</b> 8.1 Points, Lines, Planes, and Angles 8.2 Triangles and Other Polygons 8.3 Perimeter and Circumference	Homework 7 3/10
	3/10-21	<b>Spring Break</b>	

9	3/24, 26	8.4 Area Measure and the Pythagorean Theorem 8.5 Volume and Surface Area 8.6 Networks, Non-Euclidean Geometry, and Topology 8.7 Right Triangle Trigonometry 8.8 Chaos and Fractals	Homework 8 3/24
10	3/31, 4/2	<b>Chapter Test 8</b> <b>11. Probability</b> 11.1 Sample Spaces and Probability 11.2 Counting Techniques and Probability	Homework 9 3/31
11	4/7, 9	11.3 Computation of Probabilities 11.4 Conditional Probability 11.5 Independent Events 11.6 Odds and Mathematical Expectation	Homework 10 4/7
12	4/14, 16	<b>Chapter Test 11</b> <b>12. Statistics</b> 12.1 Sampling, Frequency Distributions, and Graphs 12.2 Measures of Central Tendency: The Mean, Median, Mode 12.3 Measures of Dispersion: The Range and Standard Deviation	Homework 11 4/14
13	4/21, 23	12.4 The Normal Distribution: A Problem-Solving Tool <b>13. Your Money and Your Math</b> 13.1 Interest, Taxes, and Discounts 13.2 Credit Cards and Consumer Credit 13.3 Annual Percentage Rate (APR) and the Rule of 78	Homework 12 4/21
14	4/28, 30	<b>Chapter Test 12</b> 13.4 Buying a House 13.5 Investing in Stocks, Bonds, and Mutual Funds	Homework 13 4/28
15	5/5, *	<b>15. Graph Theory</b> 15.1 Introduction to Graph Theory 15.2 Euler Paths and Euler Circuits 15.3 Hamilton Paths and Hamilton Circuits 15.4 Trees	Homework 14 5/5
16	5/12 Mon 5/09 Fri	<b>Comprehensive Final Examination - Sect 1</b> <b>Comprehensive Final Examination - Sect 2</b>	11:30-2:30 pm 6:30-9:30 pm

**Resources**

Here are some websites that you may find useful:

<http://www.purplemath.com/modules/index.htm>

[http://www.wtamu.edu/academic/anns/mps/math/mathlab/int\\_algebra/index.htm](http://www.wtamu.edu/academic/anns/mps/math/mathlab/int_algebra/index.htm)

<http://www.mathbits.com/>

**Have fun!**

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**Last updated: 1/19/2014 - 0100**