Syllabus for Mathematics 120, Intermediate Algebra

Semester & Year	Spring Semester 2017, January 16 - May 15	
Course ID and Section #	MATH-120-V2362	
Instructor's Name	Michael Butler	
Day/Time	Online	
Location	Online	
Number of Credits/Units	4	
Contact Information	*Office location*	Canvas
	Office hours	TBA
	Phone number	707-476-4234 (message only)
	Email address	michael-butler@redwoods.edu (will respond within 24 hours)
Textbook Information	*Title & Edition*	Open intro Statistics 3ed, https://www.openintro.org/stat/textbook.php
	Author	Diez/Barr/Cetinkaya-Rundel
	ISBN	978-1943450039

Course Description

A course in which functions are investigated graphically, numerically, symbolically and verbally in real-world settings. Linear, quadratic, polynomial, rational, radical, exponential, and logarithmic equations and functions are explored. Technology is integrated into all aspects of the course.

Student Learning Outcomes

1. Evaluate and interpret general functions symbolically, numerically, and graphically.
2. Produce an accurate graph of each function type introduced in the course, identifying and plotting all salient features.
3. Demonstrate appropriate use of technology in analyzing the behavior of functions presented in the course.
4. Use mathematical models to analyze and interpret real-world situations.
5. Use sound mathematical writing and appropriate use of symbolism in presenting solutions of mathematical exercises and applications.

Special Accommodations

College of the Redwoods complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request at least one week before the first test so that necessary arrangements can be made. No last-minute arrangements or post-test adjustments will be made. If you have a disability or believe you might benefit from disability related services and may need accommodations, please see me or contact Disabled Students Programs and Services. Students may make requests for alternative media by contacting DSPS at 707-476-4280.

Academic Support

Academic support is available at Counseling and Advising and includes academic advising and educational planning, Academic Support Center for tutoring and proctored tests, and Extended Opportunity Programs & Services, for eligible students, with advising, assistance, tutoring, and more.

Academic Honesty

In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases, where the instructor determines that a student has demonstrated academic dishonesty, the student may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website at: www.redwoods.edu/district/board/new/chapter5/documents/AP5500StudentConductCodeandDisciplinaryProceduresrev1.pdf Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the college catalog and on the College of the Redwoods website.

Disruptive Classroom Behavior

Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process a disruptive student may be temporarily removed from class. In addition, he or she may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website at: www.redwoods.edu/district/board/new/chapter5/documents/AP5500StudentConductCodeandDisciplinaryProceduresrev1.pdf

Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the college catalog and on the College of the Redwoods website.

Emergency Procedures for the Eureka campus:

Please review the campus evacuation sites, including the closest site to this classroom (posted by the exit of each room). The Eureka **campus emergency map** is available at: (http://www.redwoods.edu/Eureka/campus-maps/EurekaMap_emergency.pdf). For more information on Public Safety, go to http://redwoods.edu/safety/ In an emergency that requires an evacuation of the building:

Be aware of all marked exits from your area and building.

- Once outside, move to the nearest evacuation point outside your building:
- Keep streets and walkways clear for emergency vehicles and personnel.
- Do not leave campus, unless it has been deemed safe by the Incident Commander or campus authorities. (CR's lower parking lot and Tompkins Hill Rd are within the Tsunami Zone.)

RAVE - College of the Redwoods has implemented an emergency alert system. In the event of an emergency on campus you can receive an alert through your personal email and/or phones at your home, office, and cell. Registration is necessary in order to receive emergency alerts. Please go to https://www.GetRave.com/login/Redwoods and use the "Register" button on the top right portion of the registration page to create an account. During the registration process you can elect to add additional information, such as office phone, home phone, cell phone, and personal email. Please use your CR email address as your primary Registration Email. Your CR email address ends with "redwoods.edu." Please contact Public Safety at 707-476-4112 or security@redwoods.edu if you have any questions.

Computer Skills: Online courses require adequate computer skills. You should be able to navigate the course websites, open and download files, use a word processor and submit files to the class website. It is your responsibility to meet the technological demands of the course but there will be lots of support to help you meet those requirements.

Computer Requirements: A newer Mac, Windows, or Linux computer and an Internet provider are needed. You should have regular access to high-speed internet (such as broadband) service from cable, DSL, or satellite provider, as there are required multimedia assignments. You need to have reliable access to the Internet at least four days a week for 16 weeks. Anticipate problems with your computer and internet access (including power outages) by not waiting until the last minute to submit assignments. ***Portable Devices vs. Computers:*** *You will not be able to participate in this class solely from a portable device.* The software we will

be using to do our work requires a Mac or a PC (or Linux). If you do decide to use your portable device for some of your class work, use the free Canvas app (called "Canvas by Instructure") available in iTunes (for iOS) and the Google Play Store (for Android) instead of trying to connect to Canvas using a web browser on your portable device. Your experience will be a lot better using the app, but will still not substitute for having regular access to a computer to complete work in this course.

Required Resources:

1. Text: Intermediate Algebra Student Workbook 4ed. You can get the text for free as a pdf from or a printed copy from Lulu. A link to the pdf version of the textbook is also on our Canvas site.
2. You will need a TI-84 graphing calculator or emulator. The physical calculator can be found at many retail stores or online. It cost around $100. There are inexpensive of free emulators that will run on your iOS or Android phone or tablet. If you chose to use one of the inexpensive emulators, you will need to show that your phone is in Airplane mode during the proctored assessment.
3. A positive attitude is also essential in this course. There will be times when you are tempted to give up our procrastinate about doing your lessons. A positive attitude and knowing that you can succeed in math will go a long ways in helping you through those tough times. For more on how attitude helps with math acquisition go to YouCubed.org and click on the student link.

Student Commitment: This course requires at least 10+ hours per week for sixteen weeks of your time. You will need to carefully read assigned reading from the text, watch videos, participate in online discussions, complete weekly quizzes, and complete exercises from the text. Conscientiousness, attention to details, and skills in reading and writing are critical for success. It is **not** expected that you have any previous experience in the use of the Demos software.

Instructor Commitment: I access the class website regularly and respond to posted questions and messages usually within 24 hours and no later than 48 hours. Additionally, I participate in the discussions where appropriate. There are also regular instructor-based communications with weekly announcements, lectures, and evaluative feedback to your discussion posts.

Class Environment: It is expected that everyone involved in this class, teachers and students alike, will act in a manner conducive to providing a comfortable environment for learning, a place where students feel free to ask and answer questions without fear of embarrassment or ridicule. It is important to stay on task. Hence, posts to Canvas that do not pertain to the subject at hand will be removed. If you have an issue with another student's posts, please direct those concerns to me. It is essential for student success to maintain a good environment in our virtual classroom. If you have any difficulties with the learning environment, please send me an email with your phone number with a time to contact you. (The official Student Code of Conduct (AP5500))

Homework: The Modules link in Canvas are where you will find the homework assignments. Homework is an essential part of this course and if you want to succeed, you need to make a commitment now to staying up with the homework. There is a course video in the introductory module showing how to submit homework.

Writing Assignments: There will be writing assignments posted to the Discussion area in Canvas for each module. Most of these writing assignments are based on the current material being covered. There purpose is to help you find clarity in the concepts presented and to give you an idea of where mathematics is used in the real world. I hope you find these assignments engaging!

Quizzes: There will be two short quiz in each module taken via Canvas. The quizzes will generally be between 5 and 10 questions and come from the current weeks reading, homework, and videos. The first quiz is assigned a “reading quiz” that you are allowed to take as many times as you want. The content on these quizzes will come from the problem sets assigned in homework and also cover key concepts from that module. The second quiz, the Module Quiz, is a one shot affair. It is summative and gives you feedback on how

well you did comprehending the material covered in that module. Many of the questions on this quiz (in fact all) will be modifications of the questions from the Reading Quiz. No makeup quizzes are allowed without prior arrangements. The quizzes are timed at between 20 to 40 minutes. If you try to use the text or other resources for help, you will run out of time prior to completing the quiz. Keep in mind it is your education we are working on here and that you are expected to adhere to the Student Code of Conduct when taking quizzes and exams.

Exams: There will be two exams in this course, a midterm and a final. Both will be administered in Canvas. Again, you are expected to adhere to the student code of conduct when taking these exams. You are **not** allowed to use your text or other websites during these exams. Since the exams are timed (2 hours), you will not be able to complete them if you are using your text and other resources. The final exam will be proctored. Information on proctoring can be found on the Canvas site.

Communication Policy:

Contacting your teacher to ask questions, clarify assignment requirements, or inform why an assignment is going to be late are all-important to a successful experience in the online environment (just as they are in a face-to-face class). The methods available to contact me in this class include:

- the Canvas Discussion forum, email, the Canvas Message tool,
- the online office hours, and
- message phone.

I respond to questions posted in the Discussion forum or sent to me via email usually within 24 hours. The exception to this would be on the weekends or when I give prior notice that I will be out of the range of Internet service for more than 24 hours. The phone is for leaving messages only and I will respond to voice mail with a Canvas Message.

The Canvas Discussion forum is a great place to post questions about content from the material we are covering. If you are having trouble with an exercise or don't understand a concept in the reading, this is a great first stop to ask for help. Many times your peers will answer the question before I do. I encourage this and offer one point extra credit on an assignment for every question you answer (correctly) in the Discussion forum. Be sure and subscribe to the *Questions About Content* Discussion forum.

The Canvas Message tool (the Inbox link) is an excellent way to contact me with information that you need to communicate just to me. If you ask me content questions via email or through Message, I will post the response to the Canvas Discussion forum. If you need an extension on an assignment, sending a Canvas Message is the way to ask for that. If you use the Canvas Messaging system to email me, the course and section are automatically included in the message which really helps me with timely responses. If you need to use your personal email utility, please include the course name and section (Math 120 V2362) in the subject. Again, any content questions sent to me via email/Canvas-Message will be replied to in the *Questions About Content* Discussion forum

Online office hours are an excellent way to get real time help in the class! The Canvas system has a Conference tool that allows us an interactive whiteboard and desktop sharing. There is a poll where you can vote for what time the regularly scheduled office hours will occur at the end of Module One. We can also schedule additional office hours that fit your schedule. These sessions will be recorded and archived if you cannot attend.

Drop Policy:

Please confirm your presence in our online classroom. Log in to the website and post to the "Student Introductions" discussion forum no later than 11:59pm on 01-18-2017 to confirm your presence in the online classroom. Doing so will confirm your enrollment in the course and avoid being dropped as a "no show." You can and may be dropped from the class if you do not log in and post to the "Student Introductions" Discussion Forum in Canvas by 01-18-2017. A student from the waiting list may then be added in your place.

If you are struggling to keep up in the participation level required to succeed in this class, I will contact you and ask if you plan on continuing in the course. Please respond to that contact! I will take a "no response" as "you do not wish to continue" and initiate a Faculty Withdrawal from the class. Again, if you are having troubles with any of the course materials or the course format, contact me and let's see what we can do to get you back on track.

Attendance in an online class means participation. Logging into our course on a regular basis (at least three times per week) is akin to coming to class in a face-to-face class. But just as in a face-to-face class, participation in the class is part of the requirements for success. This means that you need to actively participate in the weekly Discussions. You need to read the textbook pages assigned and then take the Reading Quiz early in the week. You need to ask for help in a timely fashion when a concept or assigned exercise is causing you trouble. In addition to the regular feedback and grading that I do each week, I also check to see if you have been spending time on all of these tasks. If you are struggling to keep up in the participation level required to succeed in this class, I will contact you and ask if you plan on continuing in the course. Please respond to that contact! I will take a "no response" as "you do not wish to continue" and initiate a Faculty Withdrawal from the class. Again, if you are having troubles with any of the course materials or the course format, contact me and let's see what we can do to get you back on track.

Late Work Policy:

There are a variety of items that have to be turned in each week of the course. With few exceptions you will need to submit:

- a Reading Quiz(due Wednesday but open until Sunday),
- a Primary Post (due Wednesday) and Replies to Peers (due Sunday) in a Discussion Question,
- an Assignment from Textbook Exercises (due Sunday),
- and a Module Quiz (due Sunday).

It is my hope that you see that turning things in on time or early is important to your progress in the course. But, life happens and you may need more time to finish an item. If you need extra time ask for it in advance of needing it. I am pretty good about extensions for reasonable needs. If you flake and just forget to do an assignment, then the following late policy will be applied:

- Reading Quiz: must take and pass to move on in module (can be taken late with no penalty until end of weeks module),
- Discussion Questions: half points at most can be earned,
- Assignment from Text: half points at most can be earned,
- Module Quiz: not allowed to take late without prior warning.

In addition there will be a Midterm Quiz and a Final Quiz in the course. You are not allowed to take either of these after the due date. There will be a week's window to take each these assessments in. If you need to take either of these assessments outside of the week assigned, you must contact me in advance or have a valid medical/family emergency that is verifiable.

Videoconferences:

We all need to work together to form a sense of community in our online classroom. I have found that attending the videoconference sessions on a regular basis can really help in making the class feel more engaging and interesting. See if you can make that a regular part of your week!

Course Schedule (note that this is subject to modification)

Module Name & SLO	Module Objectives	Content	Assessments
1. Orientation and Functions. SLO 1: *Evaluate and interpret general functions symbolically, numerically, and graphically.*	1. Develop a sense of community among students 2. Identify course policies. 3. Navigate the Canvas LMS to access course materials. 4. Examine preparedness for online learning. 5. Assess algebra readiness 6. Differentiate between a function and a relation. 7. Identify when a set of ordered	• Student Introductions • Course Policies and Syllabus • Online Learning Preparedness Videos • Algebra Readiness • Section 1.1 – What is a Function? • Section 1.2 – Multiple Representations of Functions	Discussion: Introductions with icebreaker. Formative quiz on Course Policies. Self-Assessment of Algebra Readiness. Summative Quiz on

	pairs is a function. 8. Compare the multiple ways to represent a function.	Note: Every Module will include written and online homework on the topics covered. Written homework will be scanned or photographed and turned in via Assignment link.	Module Content
2. More on Functions SLO 1: *Evaluate and interpret general functions symbolically, numerically, and graphically*	1. Execute function evaluation. 2. Describe input and output as it relates to a function. 3. Critique multiple representations of a function. 4. Create graphs and tables with a graphing calculator. 5. Identify the Domain and Range of a function. 6. Interpret the restrictions of Domain and Range (calculator). 7. Solve applications of functions. 8. Criteria for a good graph. 9. Classify the practical Domain and Range of a function.	• Section 1.3 – Function Notation • Section 1.4 – Domain and Range • Section 1.5 – Applications of Functions	Discussion question on where functions occur in the real world. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
3. Function Operations		• Section 2.1 – Combining Functions • Section 2.2 – Applications of Function Operations • Section 2.3 – Composition of Functions • Section 2.4 – Applications of Function Composition	Discussion Question on why the domain and range of a function can change when we combine functions using the operations covered in this module. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
4. Linear Equations and Functions		• Section 3.1 – Linear Equations and Functions • Section 3.2 – Graphs of Linear Functions • Section 3.3 – Horizontal and Vertical Lines • Section 3.4 – Writing the Equation of a Line	Discussion question on slope as rate of change. Give examples from the students experience that involve slope. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
5. Linear Functions		• Section 4.1 – Review of	Discussion question

and Applications		Linear Functions • Section 4.2 – Average Rate of Change • Section 4.3 – Scatterplots on the Graphing Calculator • Section 4.4 –Linear Regression	on rate of change of a non-linear function. How do you determine slope of a function that is not a line? Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
6. Introduction to Exponential Functions		• Section 5.1 – Linear Functions vs. Exponential Functions • Section 5.2 – Characteristics of Exponential Functions • Section 5.3 – Solving Exponential Equations by Graphing	Discussion question on what makes a function linear? What makes a function exponential? How can you look at a function and determine if it is exponential? Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
7. More Exponential Functions		• Section 5.4 – Applications of Exponential Functions • Section 6.1 – Writing Exponential Models • Section 6.2 – Doubling Time and Halving Time	Discussion question on exponential functions and the news. Find an article from the mass media that references an exponential growth (or decay) function and discuss why the author used an exponential model. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
8. Logarithms and Logarithmic Functions		• Section 7.1 – Introduction to Logarithms	Discussion question on how to determine if a function has an inverse. Why are the

		• Section 7.2 – Computing Logarithms • Section 7.3 – Characteristics of Logarithmic Functions	logarithmic function and the exponential function inverses of each other? Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
9. More on Logarithms and Logarithmic Functions and Midterm		• Section 7.4 – Solving Logarithmic Equations • Section 7.5 – Solving Exponential Equations Algebraically and Graphically	Midterm Week. There will be a formative midterm that is comprised of the questions from the previous Modules quizzes. Students will be given 5 attempts, as the question bank is formula based.
10. Introduction to Quadratic Functions		• Section 8.1 – Characteristics of Quadratic Functions • Section 8.2 – Solving Quadratic Equations Graphically • Section 8.3 – Applications of Quadratic Functions	Discussion question on successive differences of polynomial functions and how linear and quadratic are polynomials. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
11. Solving Quadratic Equations		• Section 9.1 – Quadratic Equations in Standard Form • Section 9.2 –Factoring Quadratic Expressions • Section 9.3 – Solving Quadratic Equations by Factoring •	Discussion question on how to determine what method to use when to solve an equation. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
12. Complex Number Solutions		• Section 9.4 –The Quadratic Formula • Section 9.5 – Complex Numbers	Discussion question on the difference between complex and real numbers and why do we need

		• Section 9.6 – Complex Solutions to Quadratic Equations	complex numbers. Summative Quiz on Module Content Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
13. Radical Functions		• Section 10.1 – Roots, Radicals, and Rational Exponents • Section 10.2 – Square Root Functions – Key Characteristics • Section 10.3 – Cube Root Functions – Key Characteristics	Discussion question on domain of functions. Why are negative values excluded from logarithmic and even indexed radical functions. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
14. More on Radical Functions		• Section 10.4 – Radical Functions – Key Characteristics • Section 10.5 – Solve Radical Equations by Graphing • Section 10.6 – Solve Radical Equations Algebraically	Discussion question. Why and when to use a graphical solution method versus algebraic. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
15. Rational Functions		• Section 11.1 – Characteristics of Rational Functions • Section 11.2 – Solving Rational Equations • Section 11.3 – Applications of Rational Functions	Discussion question on use of rational functions in the real world. Why the root "ratio" makes sense when compared to rational numbers. Formative Quiz on assigned reading from textbook. Summative Quiz on Module Content.
16. Review and		• Section 12.1 –	Discussion question.

Final		Overview of Functions • Section 12.2 – Solving Equations • Section 12.3 – Mixed Applications	What are the types of functions studied this semester and what are the salient features of these functions. Summative final quiz that is proctored. See syllabus for proctoring details.

Technical Support:

Before contacting Technical Support please visit the CR-Online page and see if your issue can be resolved using the resources there.

For access issues with Canvas, Web Advisor or your mycr.redwoods.edu Email, contact Technical Support at its@redwoods.edu or call 707-476-4160 or 800-641-0400 ext. 4160 between 8:00 A.M. and 4:00 P.M., Monday through Friday.

Tutoring and Additional Help:

There is a Discussion area for asking questions about assigned problems from the text. Please make this your first stop for asking questions. If you email me a question, I will reply to you in Discussions so others can also benefit from your query. Please help each other! Sometimes a peers explanation will make more sense to you then the one I post. There will be several optional assignments during the course that can help you regain points if you fall behind. We also have access to NetTutor. Details on how to use NetTutor 24/7 are given in our Canvas site in the Course Introduction Module.

I do requests! If you are finding the explanations in the videos are not enough, you can request additional problems to be worked on video. It usually takes about 48 hours to turn it around, so ask early if possible.

There is free tutoring in the Math Lab on the CR Eureka campus. If you live in the Eureka area, then you should consider signing up for the non-credit Math 252. It is a free course that allows you access to the tutors in Math Lab.

Any questions of concerns, please email me at michael-butler@redwoods.edu

Disclaimer: I make every attempt to provide accurate information in this syllabus. If there are errors or the need for a change in policy, I will inform you of the changes prior to implementation.