MATH 1130: A Survey of Mathematics

Summer 2022 CRN 28846 3 Cr. Hrs.
Remote Arranged – Asynchronous Online

Instructor: Elaine W. Clark
Instructor Email: ewclark@unm.edu

Instructor Response Time
Professor Clark will check email (UNM Lobomail) and course messages in UNM Canvas regularly and you may expect a response within 24-48 hours from delivery of your email or message.

Instructor Led Help Sessions via Zoom:

- Sunday 2:00 to 3:00 PM
- Wednesday 6:00 to 7:00 PM
- Friday 10:30 to 11:30 AM

Other times to be arranged – check back! I may be changing these after the first week of class
Zoom id: https://unm.zoom.us/j/99306957046
Password: HelpMe

MECS Division Chair: Ariel Rameriz aramirez8@unm.edu

COURSE DESCRIPTION

Official: This course will develop students' ability to work with and interpret numerical data, to apply logical and symbolic analysis to a variety of problems, and/or to model phenomena with mathematical or logical reasoning. Topics include financial mathematics used in everyday life situations, statistics, and optional topics from a wide array of authentic contexts.
Informal: My hope is that you will have some fun with mathematics and learn some things that you may find useful.

Course Goals:
The emphasis in this course is on communicating mathematical ideas in an organized manner using correct notation. Your job is to find out how mathematics has been used throughout history to model and understand the world around us – both in the natural world and in human societal applications.

See Course Learning Objectives below.

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LEARNING OBJECTIVES, ESSENTIAL SKILLS, PLACEMENT

Student Learning Outcomes/Course Objectives

The following are the objectives for the course. Each unit will have specific learning objectives listed on the Overview Page in UNM Learn. The activities in that unit (i.e.: discussions, assignments, and assessments) are developed so that you can demonstrate you have met these objectives:

1. Construct and analyze graphs and/or data sets.
    a. Gather and organize information.
    b. Understand the purpose and use of various graphical representations such as tables, line graphs, tilings, networks, bar graphs, etc.
    c. Interpret results through graphs, lists, tables, sequences, etc.
    d. Draw conclusions from data or various graphical representations.
2. Use and solve various kinds of equations.
    a. Understand the purpose of and use appropriate formulas within a mathematical application.
    b. Solve equations within a mathematical application.
    c. Check answers to problems and determine the reasonableness of results.
3. Understand and write mathematical explanations using appropriate definitions and symbols.
    a. Translate mathematical information into symbolic form.
    b. Define mathematical concepts in the student's own words.
    c. Use basic mathematical skills to solve problems.
4. Demonstrate problem solving skills within the context of mathematical applications.
    a. Show an understanding of a mathematical application both orally and in writing.
    b. Choose an effective strategy to solve a problem.
    c. Gather and organize relevant information for a given application.

General Education Core Curriculum Essential Skills

In addition to the course learning objectives listed above, because this class meets a UNM General Education Core Curriculum requirement, activities in each unit (i.e.: discussions, assignments, and assessments) are developed so that you can demonstrate development of these essential skills:

- **Critical Thinking**
    - *Problem Setting*: Delineate a problem or question to be considered critically.
    - *Evidence Acquisition*: Identify and gather the information/data necessary to coherently address the problem or question.
    - *Evidence Evaluation*: Evaluate the information given by sources for credibility (e.g. bias, reliability, validity) and probably truth.

    - *Reasoning/Conclusion*: Develop conclusions and outcomes that reflect an informed, well-reasoned argument.
- **Communication**
    - *Genre and Disciplinary Conventions*: Use formal and informal rules/registers appropriate for the particular audience, community, purpose, context, and kind of text and/or media at hand; use them to guide formatting, organization, and stylistic choices are present.
    - *Strategies for Understanding and Evaluating Messages*: Apply strategies such as reading/analyzing for main points or themes; recognizing the variety of rhetorical situations and accompanying strategies that may contextualize messages; locating supportive documentation for arguments to understand and evaluate messages in terms of the rhetorical situation.
    - *Evaluation and Production of Arguments*: Recognize and evaluate the authority of sources in their own arguments and those of others; distinguish among supported claims, unsupported claims, facts, inferences, and opinions.
- **Quantitative Reasoning**
    - *Communication and/or Representation of Quantitative Information:* Express quantitative information symbolically, graphically, and in written or oral language
    - *Analysis of Quantitative Arguments*: Interpret, analyze and critique information or a line of reasoning presented by others
    - *Application of Quantitative Models*: Apply appropriate quantitative models to real-world or other contextual problems

Prerequisites and/or Course Placement

To stay in this class, you must meet one of the following criteria:

- Have a C or better in (Math 1215X and Math 1215Y) or Math 1215 or Math 1220 or Math 1350 or Math 1230 or Math 1240 or Math 1250 or Math 1430 or Math 1440 or Math 1512 or Math 1522
- Math ACT score of 18 or higher
- SAT score of 490 or higher
- Next Gen Accuplacer score
    - Arithmetic: 276 or higher
    - QRAS: 253 or higher
    - Advanced A&F: 228 or higher
- Or other placement criteria used by the UNM-Valencia Campus.

TECHNICAL SKILLS AND REQUIREMENTS

NOTE #1: If the embedded hyperlinks provided herein will not open, go to the corresponding footnote for the full URL link to open.

NOTE #2: For links to online PDF formatted documents, you may need to give permission for the document to open. Look for a pop-up window asking for your permission

Skills Needed:
In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

- Use UNM Canvas (help documentation located in "How to Use Canvas and Other Online Tools"[1]).
- Use UNM email – including attaching files, opening files, downloading attachments.
- Open a hyperlink (click on a hyperlink to access a website or online resource).
- Copy and paste within applications including Microsoft Office.
- Use Microsoft Office applications (the MS Office Suite[2] is available free to UNM students):
    - Create, download, update, save and upload MS Word documents.
    - Create, download, update, save and upload MS PowerPoint presentations.
    - Create, download, update, save and upload MS Excel spreadsheets.
    - Download, annotate, save, and upload PDF files.
- Use Zoom web conferencing tool (see below).
- Download and install an application or plug in.

Computer Requirements

- A high-speed Internet connection is highly recommended.
- Appropriate computer operating system. Not all programs run on Linux, for example.
- Supported browsers include those listed on this website: Browser and Computer Requirements[3]
- ***Be aware, some programs that use mathematics will not work well on mobile devices such as smart phones or tablets. You should use a laptop or desktop computer to complete much of the work for this course.***
- If you plan to create videos for this class, you will need the correct hardware and have the needed skills to create and upload these.
- Please update your contact information in Loboweb: MyUNM Login[4]. When you log into MyUNM, Enter LoboWeb. Click on the Personal Information link to make sure your contact information is up to date.
- Laptops may be available for checkout for the Summer term to UNM-Valencia students. Contact UNM-Valencia Student Services[5] for more information.

[1] https://canvasinfo.unm.edu/students/intro-to-canvas/index.html
[2] http://it.unm.edu/software/index.html
[3] https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Instructure/ta-p/66
[4] http://my.unm.edu/home
[5] http://valencia.unm.edu/students/student-services.html

Web Conferencing Requirements
We will use Zoom for any impromptu group sessions and for scheduled help sessions with the instructor. For these online sessions, you will need:

- A headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore, or online.
- A high-speed internet connection is highly recommended for these sessions. A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.
- You should also dress and behave as you would when attending an in-person class, even if you do not turn on your video camera.
- To create a UNM supported Zoom account, visit the UNM Zoom[6] log in page.

Technical Support

- For UNM Technical Support: (505) 277-0857 (24/7) or click on the Help link in our course in Canvas in the left-hand navigation menu.
- UNM-Valencia IT Support: (505)925-8911
- UNM Web Conference Technical Help: (505) 277-0857

TEXTBOOK AND SUPPLEMENTAL MATERIALS

Required Textbook:
The text for this course is ***Mathematics All Around****,* 6th ed. by Thomas L. Pirnot. This book and courseware will be available through UNM's Inclusive Access/Redshelf process. That means that ***as soon as you register for this class, you will have access to the e-book and it will be charged to your bursar's account***. You can find out more about this and your options at https://bookstore.unm.edu/t-1unm_inclusiveaccess.aspx .

Recommended and/or Optional Textbooks, Journals and Articles:
Any additional readings for this class will be provided via links in UNM Canvas.

PARTICIPATION

Expectations for Participation:

- Spend 9-12 hours per week on this course.
- Learn or know how to navigate in Canvas, Zoom, and MyMathLab.
- Communicate with one another in group discussions and projects (if applicable).
- Keep up with course announcements and assignments.
- Use a UNM supported messaging system for all correspondence with instructor and fellow students: Lobomail or messages in Canvas.

[6] https://unm.zoom.us/

- Communicate regularly with instructor, especially if anything arises that will keep you from completing assignments on time.
- Address technical problems immediately.
- Observe course netiquette at all times (don't be a troll).

Netiquette

One of the overriding principles in online conversations is to "craft your responses effectively." This is especially true of online communication where others do not have the opportunity to see body language or hear tone of voice; therefore, misunderstandings are more likely.

Please, follow the guidelines below and those in the UNM Netiquette document[7] in all of your online responses and discussion postings.

- Honor everyone's right to an opinion.
- Respect the right of each person to disagree with others.
- Respond honestly but thoughtfully and respectfully; use language which others will not consider foul or abusive. You may also use emoticons to convey a lighter tone.
- Respect your own privacy and the privacy of others by not revealing information which you deem private and which you feel might embarrass you or others
- Be prepared to clarify statements which might be misunderstood or misinterpreted by others.

A Special Note about Anger

- Do not send messages that you have written when you are angry, even anonymous ones. In the online world, angry messages are known as "flaming" and are considered bad behavior. Venting and flaming are two different things. It is possible to vent without becoming "ugly." Stick to the facts of what is causing you frustration.
- Do not send messages that are written all in upper case; this is the visual equivalent of SHOUTING. It is considered aggressive and is considered bad behavior. If you ever feel like shouting a message, take a deep breath and wait until you have calmed down before posting. Then, post in a calm and factual manner.

COURSEWORK

In this class I am asking you to complete various homework assignments, most of which will be computational in nature. Also, there will be some projects and chapter assessments. Finally, there will be a midterm and final assessment. Below are descriptions of how these will work.

[7] http://online.unm.edu/help/learn/students/pdf/discussion-netiquette.pdf

Homework
Included in this category are:

- Start Here assignments
- Online computational homework in MyMathLab
- Written homework assignments (must be uploaded into Canvas)
- Discussion posts

Projects and Chapter Assessments
At the end of each chapter you will either have a related project to complete or a chapter assessment to complete. Chapter projects will be the same for everyone and you may have the choice to complete the projects in groups of no more than four people. I will give complete instructions about these elsewhere.

For the **chapter assessment**, you will have a choice of completing one of the following:

- Chapter exam
- Chapter essay
- Chapter video

I will provide more information about how and when to make your choice of modality and how to complete these assignments.

Midterm and Final Assessments
There will be one midterm and one final exam for this course. A portion of the exam will be computational in nature and the other portion will be more open-ended, essay type questions. Complete instructions will appear elsewhere.

GRADING PROCEDURES

In this course I will be using what is called "contract grading". This means I will not keep track of a whole bunch of points but you will need to meet certain expectations to earn the corresponding grade. To do this, I will ask you to sign your grading contract so that you know what expectations go with what course grade. In general, the contract will describe what percent of the assignments listed above you need to complete and at what level of proficiency. I will also provide rubrics so that you know how I am determining completion level for assignments.

Be sure to refer to the Course Contract to see what is expected for each course grade!

UNM POLICIES

Equal Opportunity and Non-Discrimination
In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education[8] (see pg. 15). This designation requires that any report of gender

[8] https://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf

discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity[9].

Read more about UNM policy regarding sexual misconduct[10].

Copyright Issues

All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course. Also, everything you submit to me with your name on it is automatically covered by copyright – this means you should not use it again for another class.

The UNM Copyright Guide[11] has additional helpful information on this topic.

Accessibility and Accommodations

The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact:

- UNM-Valencia Student Services[12] if you are a Valencia campus student. The phone number is 505-925-8560
- UNM Accessibility Resource Center[13] in 2021 Mesa Vista Hall if you are a main campus student. The phone number is 505-277-3506.
- For students from other campuses, check with your student services folks.

Information about your disability is confidential and your instructor cannot refer you for accommodations. Be aware that you will need to provide documentation. If you need assistance in obtaining documentation, the offices above can assist you.

Accessibility Statements

Canvas Accessibility statement[14]
Microsoft's Accessibility statement[15]
Zoom Accessibility statement[16]

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[9] http://oeo.unm.edu/
[10] https://policy.unm.edu/university-policies/2000/2740.html
[11] https://copyright.unm.edu/
[12] http://valencia.unm.edu/students/student-services.html
[13] https://arc.unm.edu/
[14] https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-Canvas-accessibility-standards/ta-p/1564
[15] https://www.microsoft.com/en-us/accessibility/
[16] https://explore.zoom.us/en/accessibility/

Academic Integrity
You should be familiar with UNM's Policy on Academic Dishonesty[17] and the Student Code of Conduct[18] which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

COVID-19 Requirements
The University of New Mexico requires that all faculty, staff, and students accessing University facilities, housing, programs, services, and activities in person be fully vaccinated for COVID-19, subject to limited exemptions. Proof of vaccination and booster, or a medical, religious, or online remote exemption, must be uploaded to the UNM vaccination verification site. At present, UNM is not requiring masking on UNM campuses for Summer 2022 classes, with the exception of health care facilities with specific COVID-19 regulations.

If you have a positive test for COVID-19 or symptoms of COVID-19, please do not attend class in person. Communicate with me about your absence and possible make-up assignments or work. Please follow the latest guidance from the Center for Disease Control (CDC) and the New Mexico Department of Health (NMDOH) on quarantining or isolating following a positive test for COVID. The current guidance requires a quarantine or isolation period of five days after a positive test or appearance of symptoms.

UNM COVID-19 requirements are subject to change relative to guidance from the New Mexico Department of Health. Thank you for keeping the Lobo community safe!

Drop Policy:
Below are the conditions under which I will drop you from this course:

- Do not log in or attempt any work before the last day to drop without a grade.
- Do not complete, sign, and submit the Course Contract by the due date, or at least before the last day to drop without a grade.
- You ask me to drop you.

This means that if it is past the last day to drop without a grade and you stop doing any work, you will receive an F for the class unless you ask me to drop you or you drop yourself. An Incomplete (I) grade will only be issued if it is well past the midpoint of the term, you are passing the class, and extreme circumstances keep you from completing.

UNM RESOURCES

- UNM Valencia Campus Tutoring Services[19]
- UNM Valencia Peer Mentor Program[20]

[17] https://pathfinder.unm.edu/campus-policies/academic-dishonesty.html
[18] https://pathfinder.unm.edu/code-of-conduct.html
[19] http://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html
[20] https://valencia.unm.edu/students/financial-aid/peer-mentor-program.html

- UNM Main Campus CAPS Tutoring Services[21]
- UNM-Valencia Library[22]
- UNM Libraries[23]
- "Life" Resources available to UNM-Valencia Students[24]
- Student Health & Counseling (SHAC) Online Services[25]

FOR MILITARY-CONNECTED STUDENTS
If you feel that you need help beyond what faculty and/or staff at UNM-Valencia can give you, please reach out to the Veterans Resource Center on the Albuquerque campus at 505-277-3181, or by email at vrc@unm.edu. The Veterans Coordinator at UNM-Valencia is in the Student Services Office, at 505-925-8560.

SEMESTER DEADLINES

Summer 2022 – 8-week class

- Monday, June 6: First day of class, classes available in Canvas
- Friday, June 10, by 5:00 PM: Last day to add a class or to change credit hours or grade mode in LoboWEB.
- Friday, June 17: Last day to drop without "W" grade and with 100% refund on LoboWEB
- Friday, July 1 through Monday, July 4: Fourth of July Holiday, no classes
- Friday, July 15: Last day to drop *without* Dean's permission on LoboWEB. Will receive "W" grade and will be responsible for tuition for the course.
- Monday, August 1: Last day to add sections and/or change credit hours with form, last day to drop *with* Dean's permission. Will receive "W" grade and will be responsible for tuition for the course.

[21] http://caps.unm.edu/services/online-tutoring/olc.php
[22] http://valencia.unm.edu/library/index.html
[23] http://library.unm.edu/
[24] http://valencia.unm.edu/students/student-resources.html
[25] https://shac.unm.edu/

COURSE SCHEDULE

Due Dates	Assignments Due	Text Sect/Topic(s)
Week 1		
• Wed, 06/08	All Start Here Assignments	Orientation to course
• Fri, 06/10	MML (MyMathLab) HW 1 Meet with Instructor	S. 1.1/Problem Solving Orientation to course
Week 2		
• Sun, 06/12	Written HW 1	S. 1.1/Problem Solving
• Wed, 06/15	MML HW 2, Discussion	S. 1.2/Inductive and Deductive Reasoning
• Fri, 06/17	MML HW 3, Discussion	S. 10.1, 10.2/ Apportionment
Week 3		
• Sun, 06/19	Written HW 3, Discussion	S. 10.3, 10.4/Fair Division
• Wed. 06/22	Ch. 10 Project	Ch. 10 topics
• Fri, 06/24	MML HW 4	S. 3.1, 3.2/Logic
Week 4		
• Sun, 06/26	Written HW 4, Discussion	S. 3.3, 3.4/Logic
• Wed, 06/29	Midterm Assessment Due	
	July 1 through 4 – Fourth of July Holiday	
Week 5		
• Wed, 07/06	MML HW 5	S. 4.1, 4.2/Graphs
• Fri, 07/08	Written HW 5, Discussion	S. 4.2, 4.3/Graphs
Week 6		
• Sun, 07/10	Ch. 4 Project, Discussion	S. 4.4/Scheduling
• Wed, 07/13	MML HW 6	S. 8.1, 8.2/Taxes, Interest, Percents
• Fri, 07/15	Written HW 6, MS Excel HW	S. 8.3, 8.4/Loans, Annuities
Week 7		
• Sun, 07/17	Ch. 8 Project	S. 8.5/Amortization
• Wed, 07/20	MML HW 7	S. 9.1, 9.2, 9.3/ Geometry
• Fri, 07/22	Written HW 7, Discussion	S. 9.4, 9.5/Geometry, Units of Measure
Week 8		
• Sun, 07/24	Ch. 9 Project/Assessment	S. 9.6, 9.7/Symmetry, Tessellations/Fractals
• Wed, 07/27	MML HW 8, Written HW 8	S. 14.1, 14.2/Statistics
Final		
• Sun. 07/31	Final Assessment due	