MATH 1130: A Survey of Mathematics

Fall 2020 CRN 64311 3 Cr. Hrs.
Remote Arranged – Asynchronous Online

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Instructor Led Study Sessions: Zoom T/W/Th at 10:15-12:15
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COURSE DESCRIPTION

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.

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 the natural world and human societal applications.

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

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

TECHNICAL SKILLS

NOTE: if the embedded hyperlinks provided below will not open, go to the indicated footnote for the full URL link to open

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

- Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at Online Student Documentation[1]). Also, UNM-Valencia provides a Blackboard Learn Jumpstart self-learning module to give you practice with the most commonly used tools in UNM Learn. Ask Prof. Engler if you do not see the UNM-Valencia Blackboard Learn Jumpstart in your list of classes in UNM Learn.
- Use email – including attaching files, opening files, downloading attachments
- Copy and paste within applications including Microsoft Office
- Open a hyperlink (click on a hyperlink to access a website or online resource)
- Use Microsoft Office applications (see below about the free MS Office Suite available 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
  - Access MS Teams
- Use Zoom web conferencing tool (see below)

[1] http://online.unm.edu/help/learn/students/

- Download and install an application or plug in

TECHNICAL REQUIREMENTS

Computer

- A high-speed Internet connection is highly recommended.
- Supported browsers include: Detailed Supported Browsers and Operating Systems[2]
- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can *greatly* affect performance. ***Be aware, some programs that use mathematics will not work well on mobile devices such as smart phones or tablets.***
- For the best experience when using the Kaltura Media Tools inside UNM Learn, be sure to use a supported browser[3] on a desktop.
- Microsoft Office products are available free for all UNM students (more information on the UNM IT Software Distribution and Downloads page[4])
- Please update your contact information in Loboweb: MyUNM Login[5]. 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 Fall semester from the UNM-Valencia Library[6]. Contact UNM-Valencia Student Services[7] for more information.

Web Conferencing

Web conferencing will be used in this course for any impromptu group sessions or 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 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[8] log in page.

[2] https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support
[3] https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support
[4] http://it.unm.edu/software/index.html
[5] http://my.unm.edu/home
[6] http://valencia.unm.edu/library/index.html
[7] http://valencia.unm.edu/students/student-services.html
[8] https://unm.zoom.us/

Technical Support

- For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the "Create a Tech Support Ticket" link in your course.
- For UNM-Valencia IT Support: (505)925-8911
- For 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 is being provided by UNM's Inclusive Access 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.

In addition, the loose-leaf version of the book is available, which you can find at the UNM main campus bookstore in Albuquerque for an additional $40 (the greatly reduced price is because we have inclusive access).

Recommended and/or Optional Textbooks, Journals and Articles:

Any additional readings for this class will be provided via links in UNM Learn.

COURSEWORK AND PARTICIPATION

Instructor Response Time

The instructor you will communicate with regularly will be Prof. Nancy Engler. She will be checking email and course messages in UNM Learn regularly and expect a response within 24-48 hours from your email. If you have not heard from me (Nancy) by then, please contact me again. Massive numbers of emails received means yours may slip past me.

Procedures for Completing Coursework

Late work will be penalized by deducting 10% of the available points for each day it is late to a maximum of 50% unless arrangements are made in advance.
Quizzes will be administered through MML. Exams and finals will require a pre-arranged time where I will proctor the exam via Zoom.
If you anticipate difficulty meeting a deadline, I expect to be notified a week in advance. If possible. That notification should be sent to me via email at englern@unm.edu.
All written work needs to be submitted online. If you have a difficulty using a tool to complete work, use the "Create a Tech Support Ticket" link in the Course Menu immediately and notify your instructor as well.

Course Schedule

Week	Date	Day	Assignments Due	Topic(s)	Sects. in Text
1	8/20 8/23	Thurs. Sun.	Orientation; MML HW Week 1 Scavenger Hunt, Intro Discussion in Learn	Week 1 and Start: Problem Solving	Sect. 1.1
2	8/25 8/27 8/30	Tues. Thurs. Sun.	MML HW Week 2 Written Problem Set 1 MML Chapter 1 Quiz Weekly Journal	Week 2: Inductive and Deductive Reasoning, Estimation	Sects. 1.2. 1.3
	Last day to Add or		**Change Cr. Hrs. or Grade Mode by 5:00 PM MDT August 28**		
3	9/1 9/3 9/6	Tues. Thurs. Sun.	MML HW Week 3 Written Problem Set 2 MML Chapter 2 Quiz Weekly Journal	Week 3: The Language of Sets, Comparing Sets, Set Operations	Sects. 2.1, 2.2, 2.3
	Last day to drop		**without a grade is September 4**	**By 5:00 PM MDT**	
	Labor Day Holiday Monday, September 7				
4	9/8 9/10 9/11 9/13	Tues. Thurs. Fri. Sun.	**Survey Project initiated by Tues, 9/8, completed by Fri, 9/11** MML HW Week 4 Review; **Survey Project complete** **Exam 1 completed by Sunday 9/13 - Chapters 1 and 2**	Week 4: Survey Problems	Sects. 2.4
5	9/15 9/17 9/20	Tues. Thurs. Sun.	MML HW Week 5 Written Problem Set 3 Weekly Journal	Week 5: Logic - Statements, Connectives, Quantifiers, Truth Tables	Sects. 3.1, 3.2
6	9/22 9/24 9/27	Tues. Thurs. Sun.	MML HW Week 6 Week 6 Discussion MML Chapter 3 Quiz Weekly Journal	Week 6: Logic - Arguments, Fuzzy Logic	Sects. 3.3, 3.4, 3.6
7	9/29 10/1 10/2 10/4	Tues. Thurs. Fri. Sun.	MML HW Week 7 Written Problem Set 4 Week 7 Discussion Weekly Journal	Week 7: Number Theory, Integers, Rational Numbers,	Sects. 6.1, 6.2, 6.3
8	10/6	Tues.	MML HW Week 8	Week 8: Number Theory,	Sects.

Fall Break			**Wednesday October 7**	Real Numbers, Exponents, Scientific Notation	6.4, 6.5
8cont.	10/8 10/11	Thurs. Sun.	Written Problem Set 5 Weekly Journal		
9	10/13 10/15 10/16 10/18	Tues. Thurs. Fri. Sun.	MML Chapter 6 Quiz Week 9 Discussion MML HW Week 9 Weekly Journal	Week 9: Percents, Taxes, and Inflation, Interest	Sects. 8.1, 8.2

Week	Date	Day	Assignments Due	Topic(s)	Sects. in Text
10	10/20	Tues.	Review		
	10/22	Thurs.	**Exam 2 completed by Thursday 10/22 - Chapters 3 and 6**		
	10/25	Sun.	Weekly Journal		
11	10/27	Tues.	MML HW Week 11	Week 11: Consumer Loans,	Sects. 8.3,
	10/29	Thurs.	Written Problem Set 6	Annuities, Amortized Loans	8.4, 8.5
	10/30	Fri.	**Compound Interest**	**Project completed by Friday, 10/30**	
	11/1	Sun.	Weekly Journal		
12	**Election Day, Tuesday 11/03**				
	11/5	Thurs.	MML HW Week 12	Week 12: Counting Methods,	Sects. 12.1,
	11/6	Fri.	MML Chapter 8 Quiz	Fundamental Counting	12.2
	11/8	Sun.	Written Problem Set 7	Principle	
Last day to drop without Dean's permission is November 6 by 5:00 PM MDT					
13	11/10	Tues.	MML HW Week 13	Week 13: Permutations,	Sects. 12.3,
	11/12	Thurs.	Week 13 Discussion	Combinations, Counting,	12.4
	11/15	Sun.	MML Chapter 12 Quiz Weekly Journal	Gambling	
14	11/17	Tues.	MML HW Week 14	Week 14: Organizing and	Sects. 14.1,
	11/19	Thurs.	Written Problem Set 8	Visualizing Data, Measures	14.2
	11/22	Sun.	MML Chapter 14 Quiz	of Central Tendency	
15	11/24	Tues.	Final Journal Entry for Course		
	Thanksgiving Break November 26 - 29				
15	11/30 thru 12/6		**Review Week,**	**Complete all Project Resubmissions**	
Finals Week 12/7			**Complete Exam 3 by December 10**		

Expectations for Participation

Example Expectations:

- time required (9-12 hrs per week)
- students are expected to learn how to navigate in Learn
- students are expected to communicate with one another in team projects
- students are expected to keep abreast of course announcements
- students are expected to use the Learn course email as opposed to a personal email address
- students are expected to keep instructor informed of class related problems, or problems that may prevent the student from full participation
- students are expected to address technical problems immediately
- students are expected to observe course netiquette at all times

Netiquette

NOTE: 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

One of the overriding principles in online conversations is to "craft your responses effectively." It is sometimes difficult to remember that there are real people reading posted messages. 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 these guidelines 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 responding. Then, respond in a calm and factual manner.

UNM Netiquette document[9]

NOTES TO STUDENTS ABOUT PARTICIPATION IN A COURSE USING UNM LEARN:

Tracking Course Activity

UNM Learn automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty

Submitting Assignments

When you submit an assignment via UNM Learn, you will receive an email receipt of your submission from *do-not-reply@learn.unm.edu*. Save this email as confirmation of your submission.

GRADING PROCEDURES

Grade Weighting	
Journal Entries	10%
Projects	10%
Discussion Posts	10%
MML HW	10%
MML Quizes	10%
Written Homework	20%
2 Exams(10%each)	20%
Final Exam	10%

I will drop the lowest score from the MML HW and MML quizzes

Grading Scale

Final grades will be based on the weighted average of the categories as described above. Percentage earned

Grade	
90 -100	A
80 -89	B
70 -79	C
60 -69	D
< 60	F

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

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 [10] (see pg. 15). This designation requires that any report of gender 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[11].

Read more about UNM policy regarding sexual misconduct[12].

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.

The UNM Copyright Guide[13] 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[14] if you are a Valencia campus student. The phone number is 505-925-8560
- UNM Accessibility Resource Center[15] in 2021 Mesa Vista Hall ***if you are a main campus student***. The phone number is 505-277-3506.

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

Blackboard's Accessibility statement[16]

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[10] https://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf
[11] http://oeo.unm.edu/
[12] https://policy.unm.edu/university-policies/2000/2740.html
[13] https://copyright.unm.edu/
[14] http://valencia.unm.edu/students/student-services.html
[15] https://arc.unm.edu/
[16] https://www.blackboard.com/blackboard-accessibility-commitment

Microsoft's Accessibility statement[17]
Include links to accessibility statements for all other technologies included in the course.

Academic Integrity
You should be familiar with UNM's Policy on Academic Dishonesty[18] and the Student Code of Conduct[19] which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Drop Policy:
[This section states your departmental policy for dropping students – edit or include your own statement.]

UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

UNM RESOURCES

- **UNM Valencia Campus Tutoring Services[20]**
- **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
There are resources on campus designed to help you succeed. You can approach any faculty or staff for help with any issues you may encounter. Many faculty and staff have

[17] https://www.microsoft.com/en-us/accessibility/
[18] https://pathfinder.unm.edu/campus-policies/academic-dishonesty.html
[19] https://pathfinder.unm.edu/code-of-conduct.html
[20] http://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html
[21] http://caps.unm.edu/services/online-tutoring/olc.php
[22] http://valencia.unm.edu/library/index.html
[23] https://library.unm.edu/
[24] http://valencia.unm.edu/students/student-resources.html
[25] https://shac.unm.edu/

completed the GREEN ZONE training to learn about the unique challenges facing military-connected students. If you feel that you need help beyond what faculty and/or staff can give you, please reach out to the Veterans Resource Center on main 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

Fall 2020 – 16-week classes (deadlines will be different for first and second 8-week classes)

- Monday, August 17: First day of class, classes available in Blackboard Learn
- Friday, August 28, by 5:00 PM: Last day to add a class or to change credit hours or grade mode in LoboWEB.
- Friday, September 4: Last day to drop without "W" grade and with 100% refund on LoboWEB
- Monday, September 7: LABOR DAY HOLIDAY
- Wednesday, October 7: FALL BREAK
- Tuesday, November 3: Election Day, no classes
- Friday, November 6: Last day to drop *without* Dean's permission on LoboWEB. Will receive "W" grade and will be responsible for tuition for the course.
- November 26-29: THANKSGIVING BREAK
- November 30 – December 4: All classes will convert to remote instruction if not already remote
- Friday, December 4: 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.
- December 7-12: Finals week. All final exams given remotely.