Course Format	Weekly research meetings scheduled individually (Dawson 223) Group seminar: Tu 1:30–2:50pm (Dawson Language & Learning Lab)
Instructor Information	Sungju Moon, PhD **Primary Contact:** We will be using Slack (dedicated channel) for communications **Email:** sungju.moon@nevadastate.edu Please note that all official University communication is conducted using NS-issued email addresses (e.g., @students.nevadastate.edu) in order to comply with the Family Educational Rights and Privacy Act (FERPA). If you need assistance finding or accessing your NSU email account, please see the Policies & Student Responsibilities page. **Office Phone:** (702) 992-2725 **Office Location:** Dawson 223 **Office Hours:** TuWe 12:30–1:00 pm or by appointment
E-mail & Classroom Response Time	You can generally expect a response to e-mails within 24–48 hours (or slightly longer over weekends or holidays). Feedback for completed discussions, quizzes, and assignments depends on the length and complexity of the activity and could take up to 10 days. For questions on the status of a completed assignment, discussion, or test please contact me.
Course Description	Undergraduate research in mathematics. This course serves as a guided research experience for students participating in the CURM (Center for Undergraduate Research in Mathematics) minigrant program.
Required Text(s)	No required textbook. Students may be asked to reference specific texts depending on their individual research projects.
Learning Outcomes	After finishing this course, you will be able to: • Conduct independent research using computational modeling. • Independently locate, evaluate, and synthesize scholarly references relevant to your research topic. • Collaborate effectively on research teams and integrate diverse perspectives into shared work. • Effectively communicate research findings by presenting your work clearly and professionally through multiple formats. • Write scientific research papers by (co-)authoring a substantial research paper suitable for submission to undergraduate research journals. • Engage with the mathematical community by presenting at conferences and participating in peer review discussions as well as contributing to mathematical outreach and education "Give-Back" projects. • Develop a sustainable research agenda with a clear plan for continuing your research work beyond this course.

Course Schedule

This is a student-driven, self-paced course with no fixed schedule b eyond our structured meetings. We will meet individually at designated times to review progress and discuss your research and readings. You are expected to participate in all required program activities as well as group research activities including Group Seminar (Research Progress & Paper Review). Optional activities like Math Tea and Math Colloquium hosted by the Math and Data Science Club are also highly encouraged.

The exact timeline will vary based on your project, but your overall progress should match the pace of the schedule outlined below:

- **Weeks 1–2:** Draft specific goals (including your "Give-Back" project ideas) and dissemination plans, Even if you are continuing a project from a previous semester, reassess your goals and evaluate whether they remain achievable.
- **Weeks 3–10:** Focus on research—generating results, interpreting findings, testing new ideas, and iterating on your approach.
- **Weeks 10+:** Shift focus toward dissemination. Begin preparing your poster, presentations, and your final paper if you have not already started.

Assignment Description & Due Dates

Students will establish their own milestones at the start of the semester and work toward achieving them. Students receiving CURM stipends should expect to dedicate 10 hours per week to this work. You must also participate in program assessment conducted by CURM leadership in a timely manner.

You will be asked to upload your work on Slack instead of Canvas unless otherwise specified.

Weekly Research Logs & Individual Meetings (30%): Upload your updated research log to Slack before each individual meeting. During these meetings, we will discuss your progress, plan next steps, and prepare for upcoming deadlines (abstract submissions, presentations, etc.). You may also choose to work through relevant texts with the instructor during these meetings.

Group Seminar Presentations (30%): Take turns presenting *Research Progress* updates and *Paper Reviews* during our Group Seminar. Upload your materials on Slack before presenting.

For Research Progress, include slides with results, summaries, and code, or upload a working draft if you've been primarily writing a manuscript or poster. Begin with a brief summary of your project's direction, then present your accumulated results since your last presentation and open them for discussion.

For Paper Reviews, provide an abstract with full citation (author, year, journal, title, volume, pages). Your presentation must explain why you chose this paper and how it connects to your work. Note that "Review" here means close reading and engagement with the paper, not simply evaluating whether the paper is "good" or "bad".

When it is your turn to present, your grade that week will be based on your presentation. When it is not your turn to present, your grade that week will be based on your active participation as an audience member, providing thoughtful feedback and engaging with questions and discussion.

Conference Presentations (15%): Present your research (as main author or co-author) at a local or national mathematics conference. We will aim to submit abstracts to the URCWC conference and will discuss other opportunities as they arise. If external conferences do not work out, you will present at Nevada State Math Colloquium series. Your grade will be based on quality and professionalism of your presentation. *You cannot pass the course without completing this assignment.* For students receiving CURM stipends, this is part of the grant requirements.

Final Paper (15%): Author or co-author a final paper (minimum 10 pages). You are strongly encouraged to aim for quality appropriate for submission to undergraduate research journals in mathematics, applied mathematics, or data science. Using the provided LaTeX templates for drafting your paper and presentations is highly recommended. You will be graded on research quality, clarity of writing, and adherence to academic standards. *You cannot pass the course without completing this assignment.* For students receiving CURM stipends, this is part of the grant requirements.

Other Expectations (10%): You will be graded based on your level of engagement with the required expectations listed below:

- **Collaborative Research:** Work on your focus project while also participating as a collaborator in at least one project led by another student. You only need to attend individual meetings for projects you're leading; for other projects, maintain regular communication with the project lead and contribute meaningfully to the work. For students working with the rumor modeling project, this must include maintaining regular communication with partnering students from Pima Community College. At the end of the semester, you will submit (on Canvas) a written reflection on your collaborative research experiences.
- **Your "Give Back" Project:** Participate in our colalborate outreach where research groups contribute to the broader mathematical community. Our primary activity for CURM students last semester involved meeting with partnering high school dual enrollment students to discuss what it is like to major in mathematics or data science. You are encouraged to propose your own "give-back" project ideas, but all participation must be documented (on Canvas) with a written reflection to earn full credit. **You cannot pass the course without completing this requirement.** For students receiving CURM stipends, this is part of the grant requirements.

Exam Description

This course does not include any exams.

Late Work Policy & Attendance Expections

If you experience a serious or ongoing medical or extenuating circumstance (e.g., a major medical event, hospitalization, family emergency, or any situation that significantly impacts your ability to attend class for an extended period), please report it through the Student Absence Notification System (SANS).

SANS is not intended for one-time absences, brief illnesses, or situations where you can communicate directly with your instructor. Once a SANS report is submitted, it will be reviewed, and both you and your instructor will be notified. Your instructor will then determine if and how missed or late work can be addressed.

There may be days you do not to attend classes or leave early due to past or ongoing crises or distressing circumstances. Disclosure of specific reasons or details is not expected, but it will be helpful if you could communicate with me about instances of missed sessions or work; this is because (1) frequent or prolonged inactivity with regard to course contents will negatively impact your learning, and (2) open communication will help us reformulate missed assignments to suit your situation. Missing five consecutive class sessions or assignments without prior or follow-up notice will prompt me to check in with you for a 'pulse check'. Please know that I am available to provide resources and connect you to support services.

Grading Criteria

Your grade will be determined by the following rubric:
(Course Point Totals)—100%

- Self-Paced Research Activities (100%)

Grading Scale (Letter Grade and Point Range):
This is an S/U grading course. You may expect to receive an S grade (success) if you achieve at least 80% on graded assignments and complete all required components for passing the course.

Regarding the *Successful/Unsuccessful* language being used here, it is important to remember that research does not always go as planned. Students can work hard and encounter unexpected obstacles. Your grade will reflect consistent effort and engagement rather than requiring perfect outcomes.

Accessing Grades and Instructor Feedback

To access your grades and find the instructor's feedback, click on Grades in the left menu. Scroll through the list until you find the new graded assignment (indicated by the blue dot to the left of the assignment name). Then click on the assignment name. You will see your grade. Below it you can click on Show Rubric to see the marked up rubric. Click on the paper title if you want to download the original document. (The instructor's marks or comments will not appear on the downloaded document.) Click on the box to the right of the paper title to see the Turnitin report. Click on View Feedback to see the paper marked up with the instructor's comments/corrections in DocViewer. The instructor's feedback is on the right.

Artificial Intelligence (AI) Policy

What Is AI? AI tools are applications and other generative technologies capable of producing content (e.g., generating, summarizing), offering feedback (e.g., revising, translating), researching, assisting with coding, or other tasks typically done by humans. Examples include, but are not limited to, ChatGPT, Grammarly, Bing Copilot, Google Gemini, Grok, Answers.AI, Quillbot, Claude AI, DeepL, DeepAI, DALL-E, etc.

AI Tools Banned on State-Owned Devices. The State of Nevada has banned (link) some AI tools (and other technology) due to security or intellectual property concerns. You cannot use these tools on University-owned computers or other devices:

- Grammarly (public version)
- DeepSeek AI

The State updates the banned technology list occasionally, so other tools may be added. You are responsible for checking the most updated list to ensure you are not using any banned tools on state-owned devices.

AI Use Policy for This Course.

- *Prohibited Uses.* As a student in this course, you are not allowed to use AI assignments in the following ways:
  - Generating full essays, reflections, research logs, presentations, or academic papers
  - Generating plots and graphs used in research logs or presentations
  - Submitting wholly AI-generated programming code

- *Permitted Uses.* You are allowed to use AI in the following ways:
  - Checking grammar and spelling
  - Generating artificial data to be used for testing purposes (with AI attribution)
  - Research assistance or finding sources
  - Brainstorming or outlining ideas for papers or projects (with AI attribution)
  - Converting from one programming language to another for testing purposes (with AI attribution)
  - Generating visualizations for internal use (with AI attribution, not for publication)

If you are unsure how AI can be used for a specific assignment, talk to the instructor before you get started.

AI Citation. This class does not require a specific citation style. The citation style will usually be dictated by the target journal you are considering for your research dissemination. The example below, in AMS style, may be used for AI attribution:

> [1] OpenAI ChatGPT-version chat response to prompt "Your prompt goes here," 2025.
>
> In text citation example: "...according to ChatGPT [1]..."

Consequences for Misuse. Misuse of AI may result in plagiarism or academic misconduct penalties outlined in the NS Student Code of Conduct and/or the LASB Academic Conduct Policy (found under Resources & Policies). Continued misuse of AI in coursework or across courses will result in escalating consequences based on the severity and frequency of the violation, which could include receiving an F in this course, academic probation, suspension, or expulsion.

LASB Course Policies & Guidelines

All courses in the School of Liberal Arts, Sciences, and Business (LASB) are subject to LASB course policies and guidelines. You are responsible for reading, understanding, and abiding by these policies and guidelines.

Student Support & Resources

Academic Success Center (Tutoring). The Academic Success Center (ASC) offers a range of services including free one-on-one and group tutoring sessions where students can review and practice course concepts and relevant study/test taking strategies with trained peer tutors.

NetTutor Online Tutoring—Did you know you can receive a free on-demand academic support at your convenience when the ASC is closed? You can submit a question or request a drop-in session for a specific subject with an e-instructor. The majority of NetTutor e-instructors have a Master's or Ph.D. in the field. You can access NetTutor through Canvas by selecting the "NetTutor Online Tutoring" on the left-side navigation bar in each of your courses.

Writing Center. Supporting every NS student's ability to improve their process and product, the Writing Center provides trained readers for all writers, all projects, in all disciplines, and during all stages.

Academic Advising Center. The Academic Advising Center is a dedicated team of Advisors committed to your academic success at NS. By providing the right advice and guidance, we helpe students meet their educational and personal objectives. Please visit Academic Advising Center.

Scorpion Success Network. If the instructor determines your performance in this class is placing you at academic risk, you may be referred to a member of the Academic Advising Center. An Academic Advisor will work with you to address issues and develop a student success strategy. Regardless of whether a referral has or has not been made, you are ultimately responsible for tracking your own progress in this course. If you would like to meet with an Advisor regarding any academic struggles you are experiencing, please contact Academic Advising at (702) 992-2160 or at `studentsuccess@nevadastate.edu`.

Student Wellness Services. If you are struggling with hunger, unstable housing, safety, mental health worries, or ANY other concerns, contact Student Wellness. Email: `studentwellness@nevadastate.edu` | Call (702) 992-2514.

Disability Resources. At Nevada State University, we recognize our responsibility and embrace the opportunity to meet the unique educational needs of students with documented disabilities. The staff of the Disability Resource Center (DRC) is dedicated to providing a coordinated program of support services for students qualifying with disabilities under the Americans with Disabilities Act (ADA) and Section 504 Guidelines. Our mission is to ensure that all students qualifying with disabilities have equal access to participate in, contribute to, and benefit from all university programs, classes and activities. Confidential, sensitive, and individualized services are provided free of charge, on a case-by-case basis.

Any student who believes s/he may need accommodations, based on the impact of a documented disability, should contact the DRC Office to speak privately with the Director of the DRC about specific needs. To make an appointment, please contact the DRC office at (702) 992-2180 or by email at drc@nevadastate.edu.

Veteran Concerns. If you are a veteran who is struggling academically or have concerns please contact the DRC office at (702) 992-2180 or by email at drc@nevadastate.edu.

STAR (Student Transition and Retention). STAR (Student Transition and Retention) is the cornerstone of the student experience at Nevada State University. Our mission is to provide every Nevada State student with continuous support throughout their academic journey. Meet with our team to navigate campus resources, find a student community, develop time management skills and set and achieve personal and academic goals. Click on Student Transition and Retention.