

# UGS 200H: HONORS RESEARCH SEMINARS 2025-26

3 CREDITS \* FALL & SPRING SEMESTER ENGAGEMENT REQUIRED \* PASS-NO PASS \*

POTENTIAL INTEGRATIVE STUDIES SUB – FOR HC STUDENTS ONLY; ASP NOT ELIGIBLE FOR SUB

## **Section 001: Introduction to Materials Research through Scanning Electron Microscopy (NS)**

Dr. Carl Boehlert & Dr. Per Askeland, Department of Chemical Engineering & Materials Science

Mon. 9:10-10am; Max 17

This Research Seminar will allow students to learn about one of the most widely used tools in multidisciplinary materials-based research, a scanning electron microscope (SEM). Students will focus on SEM analysis of ceramics, composites, biomaterials, metallic alloys, etc. The students will also be responsible for performing a materials-based research project using the SEM and presenting their research through a poster display at the University Undergraduate Research and Arts Forum (UURAF) in April 2026.

## **Section 002: Creative Expressions with Digital Magazine-Making (AH)**

Dr. Sheri Lewis, Department of African American and African Studies

Wed. 5-6:20pm; Max 10

Creative expressions with digital magazine-making is a course for those students who wish to understand: “how you know what you know”, “who taught you” and “what type of impact will you make with what you know?”. This project-based research course is designed to help you tell their stories in creative ways, through images, as an artistic genre, in community, and with hopes to make a social impact. It is important for students to know they are producers of knowledge, able to create their own images and narratives, and have space to experiment with digital media to circulate knowledge freely. Following the traditions of magazines as a way to circulate the news, we too will share what we have to say about our lived experiences and make meaning of the world using the tools and technologies around us. To do so, in this course students will gain hands-on experience with multidimensional storytelling and graphic design, using digital software programs such as Adobe, Canva, Alldesign and Procreate, and photography using digital cameras. There is no prerequisite knowledge required and open to all honor seminar students who are invested in social justice, anime, cosplay, speculative fiction, Black feminist theory, queer theory, and/or hip hop as a lifestyle. Our final collective culminating project will be a published digital and printed magazine. The goal of the magazine will be to support students in advancing their visual arts and digital skills as well as to explore creative ways expressing critical thoughts about self, community and society.

## **Section 003: From Atomic Nuclei to Stars: Research at the National Superconducting Cyclotron Laboratory & Facility for Rare Isotope Beams (NS)**

Dr. Yue Hao & Colleagues, Department of Physics and Astronomy

Wed. 5-5:50pm; Max 10

With the completion of the Facility for Rare Isotope Beams (FRIB), the most powerful heavy-ion accelerator facility in the world, scientists from MSU and all over the world are conducting nuclear physics research of producing and studying exotic nuclei, discovering new phenomena, and creating new theoretical models to explain and predict nuclear characteristics. In this Honors Research Seminar, students will learn about some of the exciting research projects that FRIB faculty are working on, and they will join a research group to get in-depth experience in areas at the forefront of nuclear and accelerator science.

## **Section 004: Democratic Discourse and Critique: The Middle East Voices of the Arab Uprisings (AH/SS)**

Dr. Camelia Suleiman, Department of Linguistics, Languages & Cultures

Mon. 10:20am-12:10pm; Max 15

Since 2010, the Arab world has witnessed protest movements in nearly every country of the region. These protests have brought down dictatorships that had lasted a generation by offering the promise of democracy and social justice. The uprisings, however, have also resulted in civil wars, social strife and international interventions. This course will investigate the roots of these events (historic with a specific focus on the Middle East as it emerged from WWI, social, political), the course of their events, and their current status through many genres – including autobiography, news reports, film, fiction, blogs, and video – as well traditional academic sources. Students will explore the emerging variety of voices in the Arab world through these different media in order to engage with their generational peers from the Middle East. The course will also be introducing students to the basic tenets and principles of Islam, the dominant religion in the Middle East. The course will focus on Syria and its humanitarian crisis.

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## Section 005: Chinese Serials/Cereals: A Taste of Chapter Novels, Colonial Cannibals, and Sino-noir Series (AH)

Dr. Sheng-Mei Ma, Department of English

Mon. 9:10-10am; Max 12

If we forget to cross our “t,” then a duet turns into a duel. Thus, President Xi Jinping’s mantra of “China Dream” crashes into the *longue durée* of the postwar American supremacy. It bodes ill for superpower co-dependency, given China-bashing in the US and White-demonizing in China. For MSU’s honors students and next generation of young leaders, this seminar seeks to know thy “frenemy” by tracing the Chinese Serials/Cereals in a number of “courses” as in a dining or pseudo-cannibalistic, “man-eat-man” menu, spanning the classic novel *Monkey*; father of modern Chinese literature Lu Xun; (neo)colonial slaves in Wu Zhuoliu and Yu Hua; Judge Dee from Van Gulik to Tsui Hark; Asian North America Feeding (off) Western stereotypes; Sino-noir serial killers and dismemberments; the dessert of Taiwan. Nurtured by such food for thought, students move from weekly posts on D2L to a thesis and abstract to a paper outline and finally to drafts. Progressively, students focus on a topic of their choosing. The final drafts are due by the end of the class and shared in presentations. Students continue revising the drafts based on recommendations and class feedback. They will present them at MSU’s or off-campus undergraduate conferences in the spring of 2026.

## Section 006: Food-Body-Mind Intervention: Promote Whole Child Health (NS)

Dr. Jiying Ling, College of Nursing

Fri. 8:30-9:50am; Max 10

Students will actively participate in a large NIH-funded research study (UG3/UH3AT012521) targeting preschoolers aged 3-5 years old from low-socioeconomic status. The purpose of the trial is to evaluate the effects of the 16-week school- and home-based, multi-component, Food-Body-Mind intervention on improving both preschoolers’ and caregivers’ mental, emotional, behavioral, and physical health. We also have gut microbiota data collected for students to analyze to understand the relationships of gut microbiota changes with the changes of body mass index z-score, percent body fat, skin carotenoids, moderate to vigorous physical activity, chronic stress (hair cortisol), emotional, and behavioral health from baseline to post-intervention. In addition, all students will continue to design and implement an experimental study to compare the physical activity and sleep data of three popularly used commercial activity trackers (Fitbit Luxe, Garmin Vivosmart, and Amazfit Band 7 Fitness & Health Tracker) with the Actigraph (the current gold standard approach for monitoring physical activity and sleep). Students will act as both researchers and participants in the experimental study and learn how to use data to support research and practice decisions. We will also engage students to host a booth at the annual Teddy Bear Health Fair to promote healthy lifestyle and screen for fruit/vegetable intake using skin carotenoids with Veggie Meter in our local communities.

## Section 007: Predicting Sweet Corn Traits through Genetics and Phenomic (NS)

Dr. Addie Thompson, Department of Plant, Soil & Microbial Sciences

Tues. 10:20-11:40am; Max 10

Machine learning. Big data. Smart ag. Genome to phenome. Data mining. All of these buzz words or phrases hit on some of the current key interests and targets of industry R&D, tech companies, and the agricultural sector, and represent the frontiers of research and data analysis. Sensor-based phenomics approaches not only save time and increase throughput, but enable researchers and farmers to acquire repeatable, objective data rather than subjective measures of plant health and status, at high resolution, across multiple timepoints, for low cost. This seminar course will cover considerations and analysis of sensor-based data types from drone and robot platforms and will use these descriptive features in combination with genetic information (differences in DNA sequences) to predict how different varieties of sweet corn grow and develop in unique and challenging environmental conditions. This course will introduce students to statistics and coding and introduce the basics of predictive modeling. Students will be provided an opportunity to publish their research, present at the University Undergraduate Research and Arts Forum, and the North American Plant Phenotyping Network conference in the spring semester.

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## **Section 008: Global Sustainable Finance: US, Japan, Norway, and South Africa**

Dr. Antoinette Tessmer, Department of Finance

Fri 10-11:20am; Max 20

Global Sustainable Finance: US, Japan, Norway, and South Africa. This seminar investigates the impact of sustainability on financial markets in the US, Japan, Europe, and South Africa. Participants will conduct research in collaboration with students from Setsunan University (Osaka, Japan), The Norwegian School of Economics (Bergen, Norway), and The University of Pretoria (Pretoria, South Africa) to compare and contrast the effects of sustainable investments on US, Japanese, European, and South African financial markets. Is the concept of stock “value” sustainability dependent? Is the perception of investment “risk” enhanced or reduced by sustainability concerns? Have Japanese, European, and South African financial markets embraced sustainability more proactively than or differently from US markets? How do understandings, beliefs, and values about sustainable investments of an American student compare to the values of students in Japan, Norway, and South Africa? How may internationally and interculturally implicated beliefs and values shape decision making in sustainable investments? If you are intrigued by those questions, we invite you to join the conversation. This seminar gives an opportunity to manage a simulated \$1M international stock portfolio and to enhance your global awareness.

## **Section 009: From Integrated Physiological Sensing to Research Proposal and Career Development (NS)**

Dr. Chunqi Qian, Department of Radiology

Thurs. 4:10-5pm; Max 16

Students in this seminar will develop integrated detectors for physiological sensing and imaging. Students will be introduced to conceptual and practical aspects of brain imaging, helping students to understand the capability and application scenarios of various imaging modalities with a focus on MRI (magnetic resonance imaging). Students will be led through a project to build a wireless physiological sensor that can operate inside an MRI scanner. Then students will leverage these skills to address a unique application for integrated sensors in their own field of study resulting in a proof-of-concept experiment that demonstrates the project’s feasibility.

## **Section 010: Entertainment Media and Well-Being: Recovery and Risk in the Digital Age (SS)**

Dr. Allison Eden, Department of Communication

Tues. & Thurs. 4:10-5:30pm; Max 16

How does short form streaming video like Instagram Reels, YouTube and TikTok affect user attention, engagement, and well-being? This seminar examines the use of short form video as a tool for recovery, social connection, and positive well-being, as well as a potential risk factor for negative outcomes such as anxiety, attention loss, and apathy. Students will explore how media affects psychological well-being in seminar readings and discussions, as well as conduct intensive research projects supporting topical investigations in media use and well-being. The results of these projects will be presented at the 2025 University Undergraduate Research and Arts Forum, as well as at related communication and psychology conferences.

## **Section 017: Dynamic Genome: Deciphering the Evolution of Genes (NS)**

Dr. Patrick Edger, Department of Horticulture

Wed. 3-4:20pm; Max 12

Delve into the fascinating world of evolutionary genomics in this hands-on seminar course! We'll embark on a journey to explore how genes and genomes evolve, shaping the incredible diversity of life we see today. You'll gain the skills and knowledge to analyze DNA and RNA sequence data, reconstruct evolutionary relationships, and investigate the evolution of gene expression and function. Through research projects, you'll experience molecular biology techniques (like isolating RNA), master bioinformatics tools, and develop your critical thinking skills. You might even have the opportunity to publish your findings in a peer-reviewed journal and present your work at the University Undergraduate Research and Arts Forum!

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## **Section 020: MI Diaries: Studying Language Change through Audio Diaries (AH)**

Dr. Betsy Sneller & Dr. Suzanne Evans Wagner, Department of Linguistics, Languages & Cultures

Tues. 3-4:50pm; Max 10

This Honors College Seminar offers students the opportunity to participate in cutting-edge sociolinguistic research through the MI Diaries project. People all across Michigan have been submitting regular "audio diaries" to MI Diaries since April of 2020. In this seminar, students will learn the basics of sociolinguistic research as a small class. They will then put these skills into practice alongside the existing MI Diaries research team. Working individually or in small groups, with the mentorship of MSU faculty, students will develop a research question (like "How do people's voices change when they talk to their pets?" or "Do people talk more casually when they are telling a sad story vs. a happy story?"), learn to identify and analyze relevant data for their question, and present their research for a scholarly audience (UURAF) and a public audience (MSU Science Festival)

## **Section 021: Breaking and Mending Reality: Developing Tools for Academic and Personal Growth and Resilience in a Changing World (SS)**

Dr. Laura Dilley, Department of Communicative Sciences & Disorders

Dr. Devin McAuley, Department of Psychology

Fri. 1:50-2:40pm; Max 15

The focus of the seminar will be scholarly examination of tools for academic and personal resilience and productivity, toward developing individual and collective ability to respond positively to a shifting societal landscape. This seminar will enhance knowledge of disciplinary areas – including social cognitive neuroscience, “positive psychology”, computer-mediated communication, sociology, anthropology, communication sciences, linguistics, advertising and public relations – thereby affording students the opportunity to advance and develop both personally and professionally in the face of a shifting cultural and political landscape.

## **Sect 022: The Sands of Mars (NS)**

Dr. Michael Velbel, Department of Earth & Environmental Sciences

Mon. & Fri. 3-3:50pm; Max 15

The Sands of Mars: Assessment of Potential Ancient Microbial Habitability and Preparation for Mars Sample Return. The scientific search for evidence of past life on Mars is based on searching rocks and unconsolidated grains for evidence of past liquid water and the physical state and chemical composition of that water. Samples of regolith (unconsolidated grains) and sedimentary rocks have been collected at Jezero crater, Mars, by Mars 2020 (M2020) rover Perseverance. A future mission will return to Earth with the samples (Mars Sample Return, MSR). Until then, planning for processing of the samples must use terrestrial analogs and simulants – terrestrial materials that are like materials on Mars as characterized by the instruments on past and present Mars landers and rovers – to anticipate many properties of the samples collected by Perseverance. We will use microscopic imaging methods to characterize sand grains in terrestrial analogs of regolith on Mars. Depending on M2020 mission progress and MSR program priorities at the time of the seminar, we may (1) assess the fidelity of Mars regolith analogs with respect to mission-characterized Mars regolith, (2) test – on analogs – common methods used on terrestrial sand grains to infer the grains' origins, alteration, transport and deposition / accumulation histories, for possible future application to returned samples, and/or (3) fill knowledge gaps about paleoenvironmental/paleohabitability indicators and potential biosignature preservation and/or physical-textural-mineral biosignatures in anticipation of future laboratory analysis of eventually returned samples.