

# UGS 200H: HONORS RESEARCH SEMINARS 2026-27

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 2027.

## Section 002: Quantum Information and Computation Seminar (NS)

Dr. Ryan LaRose, Department of Computational Math Science and Engineering

Fri. 11:30am-12:20pm; Max 12

Quantum physics provides our most complete model of the world and thus our most complete model of information and computation. In this course, you will complete a guided research project in an area of quantum information science, for example in quantum computing, quantum error correction, or quantum Shannon theory, to name a few. In the first phase of the course, you will perform directed reading and attend seminars to gain fundamental background knowledge and formulate a research project. In the second phase of the course, you will complete the work of your research project, meeting with the instructor to discuss progress and results. In the third and final phase of the course, you will write a report on your project and have the option (if desired) to present your results to an audience of MSU students and faculty working in the field. No background in physics is required; mathematical background in linear algebra is strongly encouraged.

## Section 003: Discovering New Regulators of Jasmonate Signaling in Plant (NS)

Dr. Jinjie Liu, Department of Plant Research Laboratory

Tue. 5-5:50pm\*; Max 8

This research seminar will consist of two parts:

1. Weekly classroom meetings: Students will learn fundamental concepts and techniques, review materials, report progress, hold discussions, etc. These meetings will be held at 5:00 pm on Tuesdays in Campbell Hall.
2. Lab research: Students will conduct research-related activities in the research lab. The lab time will typically be on Wednesdays from 4:30–7:30 pm, but there are weeks students might need to come at different times due to equipment availability, experiment repeats, troubleshooting, research needs, etc. Such details will be discussed weekly by the instructor and students.

## 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

The Middle East Voices of the Arab Uprisings. "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."

## Section 005: Polymer Blends and Compatibilization Strategies for Sustainable Packaging (NS)

Dr. Tanyaradzwa Muzata, School of Packaging

Mon/Wed. 9:10-10am; Max 10

The seminar will focus on how polyethylene (PE) and polypropylene (PP) can be compatibilized via reactive extrusion. This approach will be key to developing packaging materials with improved mechanical properties, upcycling post-consumer polyolefin waste, and overcoming current challenges in using upcycled PE/PP in food packaging applications.

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## **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 targeting preschoolers. The purpose of the trial is to evaluate the effects of the 16-week school- and home-based, Food-Body-Mind intervention on improving both preschoolers' and caregivers' mental, emotional, behavioral, and physical health. We also have gut microbiota data to understand the relationships of gut microbiota changes with the changes of physical and mental health outcomes from baseline to post-intervention. 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: Language, Digital Voices and Global Issues: Analyzing Media Discourse (SS)**

Dr. Ayman Mohamed, Department of Linguistics, Languages and Cultures

Tues. 9:10-10:00am; Max 10

How do news outlets, influencers, and activists use language to shape public opinion? This seminar introduces Honors students to the linguistic analysis of media and social movements. Working with contemporary issues such as migration, protest, and digital activism—including discourse emerging from the Arab world and the Middle East—students collect real texts from news and social media platforms, learn critical discourse analysis, and develop original research projects. The course culminates in a poster presentation at the 2027 University Undergraduate Research and Arts Forum (UURAF). No prior background in linguistics or media studies is required.

## **Section 008: The Practice of Magic (AH)**

Dr. David Watson, Department of Writing, Rhetoric, and American Cultures

Fri 10:00-11:20am; Max 15

The earliest human texts record the existence of individuals within their communities whose role was the practice of magic. For thousands of years magic has been part not only of the human imagination, but of human ritual practice. This seminar will teach you about magic: what it is, how and why it is done, and what it means. We will explore esoteric texts, grimoires, and books of occult philosophy. This seminar will also teach you to do magic. We will make lunar and stellar observations, collect plant specimens, learn to make tinctures, foci, and other magical apparatus. We will make small charms and large ritual spellwork, and you will learn the principles of designing your own magic, while simultaneously engaging in the scholarly exploration of the principles of philosophy, religious studies, and cultural anthropology that inform the meaning of magical practice. The seminar will culminate in a piece of original spellwork.

## **Section 009: Bard Across the Border: The Michigan-Stratford Festival relationship, 1953-2027 (AH)**

Dr. Laura MacDonald, School of RCAF

Tue 3:00-4:20pm; Max 16

This seminar combines theatre history, arts management, Canadian studies, and border studies to investigate the history of the Michigan-Stratford festival relationship. Excavating this history, we will study the contemporary relationship, including Michigan's economic impact on the Canadian theatre festival; audience reception of cross-border theatre; and the inherent cross-cultural exchange. Students will conduct archival research and oral history interviews; watch streamed Stratford performances; participate in creative practice-as-research; and visit Stratford to engage with festival stakeholders and attend performances.

## **Section 010: Community-Centered Health Literacy Qualitative Research Seminar (SS)**

Dr. Nadia Abuelezam, Department of Family Medicine

Tues. & Thurs. 5:00-5:50pm; Max 12

This seminar will engage students in a collaborative, community-based research project exploring health literacy within Arab, Middle Eastern and North African (AMENA) communities. Students will work together to design, conduct, and analyze focus groups and interviews with AMENA community members to understand how health information is accessed, interpreted, and acted upon. Building on insights from this qualitative research, students will co-create culturally relevant health literacy interventions or educational tools that could be piloted in community settings. The seminar will blend learning, hands-on research, and community engagement. The class will discuss relevant literature, analyze qualitative data, and develop intervention ideas. An AMENA community advisory panel will provide ongoing input and feedback on both research design and proposed interventions.

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## **Section 011: Intersections of Gender, Sexuality, and Culture (SS)**

Dr. Johathan Choti, Department of Linguistics, Languages, and Cultures

Mon & Wed. 10:20-11:40am; Max 15

This undergraduate seminar will introduce students to the interdisciplinary study of gender and sexuality, with particular attention to the cultural, political, and institutional forces that shape identity and inequality in diverse global contexts. The seminar integrates scholarship from Women's and Gender Studies, Sociology, Anthropology, Cultural Studies, Queer Studies, and Black and African Diaspora Studies to develop students' capacity to analyze gender and sexuality as dynamic, socially constructed, culturally embedded, and politically contested categories.

## **Section 012: Devising Theatre: Creating Something from Nothing (AH)**

Dr. Robert Roznowski, Department of Theatre

Tue & Thurs. 12:40-2:00pm; Max 18

Devising theatre is a practice of identifying a subject matter that resonates with the group and then creating an original performance for the public. The process would include research, writing, designing, acting, music and more to create a uniquely original work that resonates with contemporary issues and collective values.

## **Section 013: Financial Analysis and Empirical Research: Bridging Theory and Practice**

Dr. Xuefeng Jiang, Department of Accounting and Information Systems

Fri. 4:10-5:30pm; Max 8

Explore how financial analysis informs real-world debates—from autoworkers' strikes to cryptocurrency scandals. In this hands-on seminar, students engage with actual financial statements, learn how markets respond to major events, and develop empirical research skills used by analysts and policymakers. Ideal for students interested in business, economics, or data-driven public policy.

## **Section 014: Bugs in Bugs—Bacteria in the Honeybee Hive Microbiome (NS)**

Dr. Jeffrey Barrick, Department of Microbiology, Genetics & Immunology/Entomology

Tue & Thurs. 8:30-9:50am; Max 9

Honeybees are vital pollinators that have a beneficial gut microbiome and face threats from microbial pathogens. Understanding what bacteria are present in a hive, how they spread, and which are friend versus foe is key to protecting bees. Students in this course will learn about entomology, microbiology, genomics, and synthetic biology through characterizing the honeybee hive microbiome.

## **Section 015: Exploring Indigenous Research Methodologies in Early Childhood Education (SS)**

Dr. Danielle Garnter and Dr. Jessica Barnes-Najor, Department of Epidemiology and Biostatistics

Tue & Wed. 2:40-4:00pm; Max 12

This two-semester, Honors Research Seminar introduces first- and second-year Honors College students to Indigenous research methodologies and their application in early childhood education settings within Tribal communities. This seminar addresses the need for culturally responsive research in early childhood education and prepares students to engage respectfully and rigorously with Indigenous communities. It contributes to ongoing scholarship on improving educational outcomes for Native children and builds capacity for future researchers committed to equity and inclusion.

## **Section 016: Life in Space: From Inquiry to Exploration and Back Again (NS)**

Dr. Matthew Schrenk, Department of Earth and Environmental Sciences

Tue & Thurs. 3:00-4:20pm; Max 15

While we are taught science subject by subject, our understanding of the natural world flows past disciplinary boundaries. Astrobiology is, by nature, a highly interdisciplinary science driven by some of the most fundamental questions known to humankind, "Why are we here?" and "Are we alone?". This honors research seminar will use these 2 questions to frame and consider interdisciplinary and diverse perspectives in the interpretation of scientific data. The course will be based upon critical discussion of key literature in the field, and analyses of astrobiology relevant field samples related to these topics. With the assistance of the instructor, students will help organize a campus-wide Astrobiology symposium during the Fall Semester and will prepare their research findings for presentation at UURAF the following spring.

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## **Section 017: Sensation-Seeking in Entertainment Media: Content Analysis with AI Assistance (SS)**

Dr. Ronald Tamborini, Department of Communication

Wed. 3-4:20pm; Max 20

This seminar introduces Honors students to the process of conducting content analysis in entertainment media. Students will examine how sensation-seeking behaviors, such as thrill, risk, and novelty seeking, are portrayed in popular entertainment media using a designed coding scheme. The project will require students to employ traditional human coding methods and then use the output from their coding to train an AI coding system. The seminar provides an opportunity for students to engage in interdisciplinary research that combines psychology, media studies, and data science.

## **Section 018: 3D-Printing and Digital Image Correlation Aided Structural Design (NS)**

Dr. Weiyi Lu, Department of Civil and Environmental Engineering

Mon. 3:00-4:50pm; Max 12

This Honors Research Seminar endeavors to foster an intuitive understanding of structural behavior among students by visualizing deflection and internal force development in structures. The seminar introduces two emerging techniques – 3D printing and Digital Image Correlation for the rapid fabrication of small-scale structures and non-contact strain field measurements. It covers key concepts in Civil Engineering, Materials Science and Engineering, and Mechanical Engineering. Students will apply the acquired knowledge and advanced experimental skills to design lightweight but stiff structures. The outcomes of these creative design projects will be presented at the 2027 Annual University Undergraduate Research and Arts Forum.

## **Section 019: Cocoa to Chocolate: International Trade and Sustainability (SS)**

Dr. Michael Olabisi, Department of Community Sustainability

Mon. 3:00-4:50pm; Max 12

This seminar will introduce students to international trade fundamentals, with a focus on developing economies, and how U.S. consumption is broadly linked to imports or inputs from developing economies. Students will learn about trade costs, and the barriers to trade that lead to those costs. They will also study the intended and unintended consequences of policies that affect trade. The seminar has two goals: First, to introduce students to the idea of trade – with a focus on chocolate – and the processes that it follows from a cocoa-bean to the chocolate bar in the store. Second, to highlight the challenges of sustainability and development linked to trade, including the trade in cocoa and chocolate. Students will learn to analyze trade data as part of their coursework. They are expected to present projects based on their coursework and data analysis at UURAF.

## **Section 020: Introduction to Biophysics and Mechanobiology Research using Advanced Microscopy (NS)**

Dr. Ruiguo Yang & Dr. Jitao Zhang, Department of Biomedical Engineering

Tues. 3-3:50pm; Max 8

This research seminar is designed for first- and second-year undergraduates who are interested in interdisciplinary research involving physical principles, engineering innovations, and life sciences. The course introduces students to the emerging field of biomedical engineering research, emphasizing how quantitative thinking and technological innovation can be applied to understand complex biological systems and tackle current challenges in human health. Throughout the seminar, students will learn how to apply fundamental physical principles and utilize advanced engineering tools to investigate biological processes at multiple scales. Students will also gain insights into experimental design, data analysis, and the underlying logic that drives scientific discovery. Importantly, students will have the opportunity to join instructors' ongoing research projects. Through this hands-on experience, students will develop practical laboratory skills, learn scientific communication, and begin cultivating the mindset of a biomedical researcher.

## **Section 021: From Atomic Nuclei to Stars: Research at the Facility for Rare Isotope Beams (NS)**

Dr. Yue Hao, Facility for Rare Isotope Beams (FRIB)

Wed. 5:20-6:10pm; Max 10

Nuclear Science is an exciting field that addresses fundamental questions like “What holds nuclei together?”, “What is the structure of nuclei near the limits of stability?”, “How do nuclei react with each other?”, and “How were the elements formed in the cosmos?”. These questions are being investigated at the new Facility for Rare Isotope Beams (FRIB) through the study of exotic nuclei that have a large excess of protons or neutrons compared to the known

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stable isotopes. This Honors Research Seminar offers students an early opportunity to participate in this process through research projects with FRIB faculty.

## **Section 023: Research Methods in Environmental and Occupational Health (NS)**

Dr. Courtney Carignan & Dr. Neil McMillan, Department of Food Science & Human Nutrition

Fri. 1:00-2:20pm; Max 16

This research seminar will provide students with insight into the exciting and evolving field of environmental and occupational health including diverse methods to conduct observational (human) and experimental (animal, cellular) studies investigating the relationship between exposure and disease. Weekly seminars will include presentations, readings, discussions and hands-on experiences conducting laboratory and field work. These experiences will be complimented by engagement of co-instructor McMillan who will contribute his expertise in occupational health, perspective from the fire service and cases studies of occupational cancer, and cardiovascular diseases. Students will learn to search and review the scientific literature, use referencing software, and have the opportunity to present research findings at University of Undergraduate Research and Arts Forum (UURAF).