



HONORS RESEARCH SEMINARS UGS 200H – 2009-2010

Honors Seminars are listed under the course number UGS 200H in the Schedule of Courses. The seminars are 3 credit courses that extend through both Fall 2009 and Spring 2010 semesters. Enroll in the 3 credit UGS 200H section for Fall 2009; the Pass/Fail grade will be extended and reported at the conclusion of Spring 2010. UGS 200H is intended for students not participating in the Professorial Assistant program.

Sec 001 – INTRODUCTION TO MATERIALS RESEARCH IN A SERVICE LEARNING FOR LEADERSHIP ENVIRONMENT

Prof. Carl Boehlert, Chemical Engineering & Material Science

Monday 4:30-5:20 pm, 175 Comm Arts & Sciences

This seminar will allow students to learn about one of the most widely used tools in multidisciplinary materials-based research, a scanning electron microscope. Student will focus on SEM analysis of ceramics, composites, biomaterials, metallic alloys, etc. This honors research seminar will also allow the students to use the knowledge they gained to teach local high school students about SEM.

Sec 002 – EDUCATING LEADERS FOR A DIVERSE DEMOCRACY: THE ROLE OF HIGHER EDUCATION IN PREPARING COMMUNITY & CIVIC LEADERS

Prof. Kris Renn, College of Education

Monday 3:00-4:20 pm, 224 Bessey Hall

In this research seminar, team members will use qualitative research methods to explore the role of colleges and universities in the education of community and civic leaders. Interviewing community and civic leaders, using institutional archives, and analyzing relevant documents, students will seek evidence of the contribution of higher education to the preparation of leaders for a diverse democracy.

Sec 003 – FROM BACTERIA TO BIRDS: RESEARCH EXPERIENCES IN LIFE-SCIENCE LABORATORIES

Prof. Alex Shingleton

Thursday 5:30-6:20 pm, 145 Natural Sciences Building

The seminar constitutes four eight-week laboratory rotations through different laboratories at MSU, and is loosely modeled on the laboratory rotations that constitute the first year of many PhD programs. The laboratories involved represent a diversity of the types of life-science research being conducted on campus. Research organisms include bacteria (Todd Ciche, Steven Cendrowski), yeast (Barry Williams), flies (Alex Shingleton, Ian Dworkin), plants (Shinhan Shui), fish (Jenny Boughman) and birds (Titus Brown). The research questions range from behavioral (Jenny Boughman, Joe Lonstein, Todd Ciche), and developmental (Alex Shingleton, Titus Brown), to evolutionary (Ian Dworkin, Shinhan Shiu) and neurological (Kyle Miller). Students will gain invaluable experience in scientific research and acquire skills and understanding that will prepare them for research internships in their Junior and Senior years. Open to second year Honors College and Academic Scholar members; students should be, or intend to be, a life science major.

Sec 004 – POLITICS OF THE POLICYMAKING PROCESS IN MICHIGAN

Prof. Matt Grossmann, Political Science

Wednesday 4:00-5:20 pm, 217 Bessey Hall

This seminar covers the policymaking process in Michigan. It is organized around the production of research materials for online public dissemination via the Michigan Policy Network at www.michiganpolicy.com. The seminar features an orientation with guest appearances by reporters and researchers who cover state public policy followed by an extended period of individualized research on a particular state public policy issue of the student's choosing. Students will learn from experienced professionals inside and outside the university and develop new communication, reporting, research, writing and technical skills.

Sec 005 – RESOURCE CONSERVATION AT MICHIGAN STATE UNIVERSITY

Profs. Steve Safferman and Terry Link, Biosystems Engineering and Office of Campus Sustainability

Tuesday 3:00-3:50 pm, 103 Berkey Hall

Students will examine behavior, practices, and equipment that might reduce waste and save natural resources at Michigan State University. The seminar will include extensive background material presented by reviewing case studies and having discussions on teamwork, creativity, design, technology, policy, pollution control, ethics, marketing, and economics. Students will then conduct applied research revolving around a streamlined life cycle assessment (LCA) to gain a comprehensive understanding of resource conservation by the minimization of waste.

Sec 006 – FIRST LANGUAGE ACQUISITION SEMINAR: ACQUISITION OF FUNCTIONAL MORPHEMES

Profs. Kristina Schmitt and Alan Munn, Linguistics

Tuesday 5:00-6:20 pm, C313 Wells Hall

Although children master their first language with little effort, there is still much we don't know about the acquisition process and what children know or don't know at particular stages of language development. In this seminar we ask how children acquire the meaning of functional morphemes (articles and tense, for example), which cannot be learned by inspection of the world. Students will collaboratively help to develop hypotheses and original experiments to test aspects of the acquisition of grammatical morphemes in children and adults.

Sec 007 – DECONSTRUCTING THE SILK ROAD

Prof. Catherin Ryu, Linguistics (Asian languages)

Friday 3:00-3:50 pm, C209 Wells Hall

By examining the received notion of the Silk Road and its various manifestations in contemporary media (e.g., YouTube, films, photojournalism, MMORPG, music, Ebay, fashion, dance, etc.), this seminar will equip students with the critical concepts and tools indispensable for undertaking cultural analysis of the representations of the Other.

Sec 008 – *SPARKS OF GENIUS TOOLS APPLIED TO TEXTBOOKS* – Profs. Robert and Michele Root-Bernstein and Norman Lownds, Physiology, Theater & Dance, and Horticulture;
Friday 9:10-10:00 am, 1420 BPS

Based on the 1999 book *Sparks of Genius*, we found that most creative people use most or all of thirteen fundamental mental “tools”: observing, imaging, abstracting, pattern recognition, pattern forming, analogizing, body thinking, empathizing, dimensional thinking, modeling, playing, transforming, and synthesizing. This research seminar will be to investigate how many of these “tools” are used explicitly in textbooks of science and of arts and humanities from elementary education through college. Our hypothesis is that most of the “tools” will be used in elementary school textbooks while only a handful will be used in high school and college texts. A corollary hypothesis is that textbooks increasingly impede the development of creative thinking skills with increasing education. Students will be introduced to both statistical and phenomenological forms of analysis and their application to scientific thinking and teaching. Results of this study will be presented at the UURAF Spring 2010 and written up for publication in an appropriate professional journal.

Sec 009 – *EXPLORING GEOGRAPHIC RACIAL EQUALITY IN THE UNITED STATES*
Prof. Joe Darden, Geography
Tuesday 3:00-4:20, 105 Geography

This seminar will provide an opportunity for students to determine the extent to which the racial and ethnic diversity revealed by the 2000 United States Census contains patterns of geographic racial equality. This research seminar will teach students how to use the 2000 U.S. Census of Population and Housing to measure residential segregation and racial/ethnic equality. Students will also use the United States Bureau of the Census American Community Survey data to examine changes toward racial equality. Students will extract the data, analyze it, interpret the results and write a paper on the findings.

Sec 010 – *CULTURAL APPLICATION OF GEOLOGICAL AND HISTORIC MASONRY MATERIALS OF THE MSU CAMPUS*
Prof. Michael Velbel, Geology
Wednesday 9:10-10:00 am, 120 Berkey Hall

Students will research and document architectural and interior applications of stone and other building materials in buildings on the MSU campus; and they will produce studies of the use and deterioration of stone and other building materials in campus buildings and interiors, including consideration of preservation and conservation issues.

Sec 011 – *INTRODUCTION TO RESEARCH IN MAGNETIC RESONANCE AND MEDICINE*
Prof Ron Meyer et al, Radiology
Tuesday 4:10-5:00 pm, 139 Radiology

Students will be introduced to the concepts and applications of nuclear magnetic resonance imaging and spectroscopy in modern medical research-and they will work on a research project, supervised by a team of MSU researchers, that focuses on optimization or cross-validation of imaging or spectroscopic methods in healthy human subjects. **Open only to second year Honors College and Academic Scholar members.**

Sec 012 – FUNCTIONAL ANATOMY OF READING STORIES VERSUS SOLVING MATH PROBLEMS USING FMRI

Prof. Jie Huang, Radiology

Monday 4:10-5:30pm, 139 Radiology

Students will learn the fundamental principles involved in functional magnetic resonance imaging through a research project that will enable them to compare differences in brain activation between reading stories and solving math problems. **Open only to second year Honors College and Academic Scholar members.**

Sec 013 – MATHEMATICAL BIOLOGY

Prof. Igor Nazarov, Lyman Briggs and Mathematics

Thursday 9:10-10:00 am, W38 Holmes Hall

The seminar will introduce and discuss a number of applications of the mathematics to many different disciplines, with a primary focus on biology. Mathematical modeling is well established science. It is used to describe and study dynamical systems with complex inner structure and sophisticated interactions of the components. Such systems naturally arise in biology. The seminar will expose students to the strange properties and behavior which biological systems may exhibit.

Sec 014 – POPULAR AND PROFESSIONAL DEBATES OVER VACCINES

Prof Mark Largent, James Madison

Wednesday 9:10-10:00 am, 319L South Case Hall

Since the late 1990's, some parents have grown increasingly anxious about the growing numbers of vaccines they are obligated to have administered to their children. Claims about a potential link to autism as well as concerns that some vaccines might not be as effective as we first thought, have encouraged increasing numbers of parents to refuse to vaccinate their children against a variety of childhood diseases. Students in this course will examine claims that have been made recently about vaccine safety and efficacy by examining popular and professional literature on the subject, including epidemiological studies, laboratory results, papers published in scientific journals, political challenges to mandatory vaccination, and the social and legal framework for challenging mandatory vaccination. Ultimately, students will design and carry out research programs on topics of their choosing and present their findings at the University Undergraduate and Research Forum.

Sec 015 – INTERACTIVE DECEPTION

Prof. Timothy Levine, Communications

Monday 3:00-3:50 pm, 175 Comm Arts & Sciences

Students will learn about the social scientific study of deception and will be involved in running experiments testing theories of deception. Content will cover theory and research on the social scientific study of deception and deception detection. Topics will include defining deception, when people lie, how often people lie, what prompts people to lie, the different forms deception takes, behavioral correlates of deception, and especially how deception is detected. Selected readings on these topics will be distributed and discussed. Seminar will sometimes meet in the GR Miller interaction lab in the Communication Arts Bldg.