



Plymouth State UNIVERSITY

COLLEGE OF GRADUATE STUDIES

Winter 2009-2010 Graduate Course Schedule

Please note that courses are subject to change. REGISTER EARLY to reserve your space!
Please visit plymouth.edu/graduate/directions for directions to courses held off campus.

Sciences

BI - Biology

BI5090.01	CRN: 30330	CELL STRUCTURE AND FUNCTION		
		Plymouth – Boyd Hall 236	Frederick Prince	fprince@plymouth.edu
		4 Credits		
		Please note that labs meet on Wednesdays at 2:25 pm in Boyd 123.		
		Monday 1:25PM – 2:15PM	2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10	
		Wednesday 1:25PM – 2:15PM	2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 2/3(2:25PM – 3:30PM), 2/10(2:25PM – 3:30PM), 2/17(2:25PM – 3:30PM), 2/24(2:25PM – 3:30PM), 3/3(2:25PM – 3:30PM), 3/10(2:25PM – 3:30PM), 3/17(2:25PM – 3:30PM), 3/31, 4/7, 4/14, 4/21, 4/28, 5/5, 3/31(2:25PM – 3:30PM), 4/7(2:25PM – 3:30PM), 4/14(2:25PM – 3:30PM), 4/21(2:25PM – 3:30PM), 4/28(2:25PM – 3:30PM), 5/5(2:25PM – 3:30PM)	
		Friday 1:25PM – 2:15PM	2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7	

Addresses the diversity of form and function found in the basic units of life, the cells. The first segment centers on the various techniques, especially electron microscopy, which are used to study microscopic anatomy. The components, organelles, which comprise a "generalized cell" are examined and their functional relationships discussed. The second segment centers on the structural differences between tissues of the body (classical histology). Finally, this knowledge of cell and tissue structure will be employed to understand organs and organ systems. This course will not be purely morphological. The development and functional properties of these systems will be examined. There will be a laboratory component in this course. Falls.

BI5100.01	CRN: 30335	BIOLOGY COLLOQUIUM		
		Plymouth – Boyd Hall 001	Leonard Reitsma	leonr@plymouth.edu
		1 Credit		
		Friday 2:30PM – 3:30PM	2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7	

Course is comprised of lectures featuring prominent speakers from a variety of institutions.

BI5380.01	CRN: 30331	AVIAN ECOLOGY		
		Plymouth – Boyd Hall 236	Leonard Reitsma	leonr@plymouth.edu
		3 Credits		
		Monday 10:10AM – 11AM	2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10	
		Wednesday 10:10AM – 11AM	2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 3/31, 4/7, 4/14, 4/21, 4/28, 5/5	
		Friday 10:10AM – 11AM	2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7	

Avian Ecology is a field-oriented course that focuses on bird interactions with each other and their environment as a medium for understanding field ecological research. Students become familiar with local bird identification, give presentations on selected topics, assist in banding birds, and carry out their own individual research projects under the guidance of a researching avian ecologist.

BI5560.01	CRN: 30332	ST:CURRENT ENVIRONMENTAL ISSUES		
		Plymouth – Boyd Hall 236	Leonard Reitsma	leonr@plymouth.edu
		3 Credits		
		Tuesday 3:30PM – 6PM	2/2, 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/30, 4/6, 4/13, 4/20, 4/27, 5/4	

A capstone course in which students and faculty examine the main issues that face ecologists, biologists and policymakers regarding the health of the biosphere. The current state of scientific understanding of such issues as global warming, ozone depletion, acid deposition, loss of biodiversity, pollution and desertification is elucidated through a combination of lectures, student presentations, seminars and discussions.

BI5770.01	CRN: 30333	ANIMAL PHYSIOLOGY		
		Plymouth – Boyd Hall 117	Christopher Chabot	chrisc@plymouth.edu
		4 Credits		
		Please note that labs are scheduled for Tuesdays.		
		Monday 12:20PM – 1:10PM	2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10	
		Tuesday 11AM – 1:45PM	2/2, 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/30, 4/6, 4/13, 4/20, 4/27, 5/4	
		Wednesday 12:20PM – 1:10PM	2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 3/31, 4/7, 4/14, 4/21, 4/28, 5/5	
		Friday 12:20PM – 1:10PM	2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7	

This course will examine the various systems of the body including the respiratory, cardiovascular, digestive and excretory systems using a comparative approach. Discusses the control of these systems and behavior by the nervous and endocrine systems. Inherent is an analysis of an interaction between the mechanisms of homeostatic regulation and the environment. Laboratory investigations using local animals illustrate some of the principles outlined in lecture through the use of student and/or instructor generated hypothesis testing and uses modern equipment including computers, Data Acquisition Units, amplifiers, transducers, stimulators and activity monitors. Spring of even years.

ESP - Environmental Science and Policy

ESP5500.01 CRN: 30336 ST:COMMUNITY RESEARCH EXPERIENCE

Plymouth – Hyde Hall 416
3 Credits

Mark Okrant mokrant@plymouth.edu
Thaddeus Guldbrandsen tcguldbrandsen@plymouth.edu

This course requires permission of the instructor prior to registration (mokrant@plymouth.edu or tcguldbrandsen@plymouth.edu).

Tuesday 3:30PM – 6PM 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/30, 4/6, 4/13, 4/20, 4/27, 5/4, 5/11, 5/18

This course engages students in experiential learning about the challenges of working in interdisciplinary teams and perspectives. Provides students with opportunities to research significant issues of local or regional scale using multiple perspectives in a collaborative. Each spring one or more research teams are formed to conduct a project often developed in cooperation with an NGO or government agency to meet the needs of that organization and/or a community in the region. The projects are not theoretical or broad in scope, but rather focused on the kinds of problems that graduates might expect to face.

ESP5710.01 CRN: 30334 SCIENCE COLLOQUIUM SERIES

Plymouth – Boyd Hall 001
1 Credit

Patrick Bourgeron psbourgeron@plymouth.edu

Wednesday 3:45PM – 5PM 2/10, 2/17, 2/24, 3/10, 3/17, 3/31, 4/14, 4/21, 4/28, 5/5, 5/12

This graduate seminar is designed to be a core course in the Environmental Science and Policy program. It will focus on the analysis of contemporary issues in environmental science. Specific topics will vary from year to year and will be tailored to the interests of the students enrolled and faculty interests. The course will create a foundation of knowledge of contemporary issues. It is also expected that it will help students refine their research interests as well as be exposed to new ideas through interaction with others in the course.

EV - Environmental Studies

EV5560.01 CRN: 30436 ST:PHYSICAL GEOGRAPHY OF NATIONAL PARKS

Plymouth – Memorial Hall 010
3 Credits

Bryon Middlekauff bryonm@plymouth.edu

Monday 1:25PM – 2:15PM 2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10, 5/17

Wednesday 1:25PM – 2:15PM 2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 3/31, 4/7, 4/14, 4/21, 4/28, 5/5, 5/12, 5/19

Friday 1:25PM – 2:15PM 2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7, 5/14, 5/21

An in-depth study of a particular topic, contemporary issue or concern. The course will be taught by a specialist within the field being studied or, as an alternative methodology, a faculty member will coordinate a series of guest speakers who will meaningfully address the topic. Since topics vary, the course may be repeated with permission of the instructor.

MT - Meteorology

MT5110.01 CRN: 30301 AIR QUALITY

Plymouth – Boyd Hall 306
3 Credits

Lourdes Aviles Bramer lavilesbramer@plymouth.edu

Tuesday 2PM – 3:15PM 2/2, 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/30, 4/6, 4/13, 4/20, 4/27, 5/4, 5/11

Thursday 2PM – 3:15PM 2/4, 2/11, 2/18, 2/25, 3/4, 3/11, 3/18, 4/1, 4/8, 4/15, 4/22, 4/29, 5/6, 5/13

This course addresses various aspects of the air quality subject. We will discuss the types of air pollutants, their sources, chemistry, and effects on humans and the environment. We will analyze how meteorological conditions enhance or reduce the air quality of a specific region. We will produce air quality forecasts. We will also discuss current issues such as air quality monitoring and air pollution regulations. PREREQ: MT4300 and any computer programming course.

MT5200.01 CRN: 30302 TRANSPORTATION METEOROLOGY

Plymouth – Boyd Hall 005
3 Credits

Eric Hoffman ehoffman@plymouth.edu

Tuesday 9:30AM – 10:45AM 2/2, 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/30, 4/6, 4/13, 4/20, 4/27, 5/4

Thursday 9:30AM – 10:45AM 2/4, 2/11, 2/18, 2/25, 3/4, 3/11, 3/18, 4/1, 4/8, 4/15, 4/22, 4/29, 5/6

Students will learn the various weather systems that affect different modes of transportation. In particular we will study road weather, aviation meteorology, and oceanic meteorology. Advanced weather analysis and forecasting skills will be applied in order to make forecasts tailored to various industries. PREREQ: MT4300, MT4320 and any computer programming course.

MT5300.01 **CRN: 30303** **SYNOPTIC METEOROLOGY II**
Plymouth – Boyd Hall 306 Eric Hoffman ehoffman@plymouth.edu
4 Credits
Monday 12:30PM – 3:15PM 2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10
Wednesday 12:30PM – 3:15PM 2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 3/31, 4/7, 4/14, 4/21, 4/28, 5/5, 5/12

Intermediate weather analysis and forecasting techniques are used to understand synoptic-scale weather systems with an emphasis on structure and evolution of extratropical cyclones. Topics include: climatology of mid-latitude surface and upper-air flow regimes and extratropical cyclogenesis; life cycle of extratropical cyclones including frontal evolutions; application of hydrodynamical equations and balanced systems to weather analysis and forecasting; ageostrophic winds; and jet stream circulations. Students participate in weekly exercises culminating in a quantitative precipitation forecasting exercise at the end of the term. This course is co-listed with MT4300 in the undergraduate curriculum.

MT5320.01 **CRN: 30312** **DYNAMIC METEOROLOGY II**
Plymouth – Boyd Hall 306 James Koerner koerner@plymouth.edu
3 Credits
Monday 9:05AM – 9:55AM 2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10
Wednesday 9:05AM – 9:55AM 2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 3/31, 4/7, 4/14, 4/21, 4/28, 5/5, 5/12
Friday 9:05AM – 9:55AM 2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7, 5/14

This course will cover the advanced topics in geophysical fluid dynamics including circulation theory, vorticity, planetary boundary layer, quasi-geostrophic theory and introductory numerical modeling concepts. Spring term. This course is co-listed with MT4320 in the undergraduate curriculum.

MT5340.01 **CRN: 30313** **RADAR METEOROLOGY**
Plymouth – Boyd Hall 306 Samuel Miller stmiller@plymouth.edu
3 Credits
Monday 11:15AM – 12:05PM 2/1, 2/8, 2/15, 2/22, 3/1, 3/8, 3/15, 3/29, 4/5, 4/12, 4/19, 4/26, 5/3, 5/10
Wednesday 11:15AM – 12:05PM 2/3, 2/10, 2/17, 2/24, 3/3, 3/10, 3/17, 3/31, 4/7, 4/14, 4/21, 4/28, 5/5, 5/12
Friday 11:15AM – 12:05PM 2/5, 2/12, 2/19, 2/26, 3/5, 3/12, 3/19, 4/2, 4/9, 4/16, 4/23, 4/30, 5/7, 5/14

This course will provide a broad overview of the hardware/theory behind the application of meteorological radar data. The course will begin with a short history of radar meteorology, which will be followed by a brief summary of the radar hardware and theory applicable to meteorological use and interpretation - beam spreading, ducting, anomalous propagation, etc. The differences between reflectivity, Doppler, and polarimetric measurements will also be discussed. Much of the remainder of the course will be used to cover the different levels of NEXRAD data, the available products for each level, algorithms used to automatically analyze these data, and application to real world problems, such as quantitative precipitation estimates and severe local storms detection. PREREQ: MT4300, MT4320, MT4410.

MT5550.01 **CRN: 30314** **ST:MESOMETEOROLOGY**
Plymouth – Boyd Hall 306 James Koerner koerner@plymouth.edu
3 Credits
Tuesday 9:30AM – 10:45AM 2/2, 2/9, 2/16, 2/23, 3/2, 3/9, 3/16, 3/30, 4/6, 4/13, 4/20, 4/27, 5/4, 5/11
Thursday 9:30AM – 10:45AM 2/4, 2/11, 2/18, 2/25, 3/4, 3/11, 3/18, 4/1, 4/8, 4/15, 4/22, 4/29, 5/6, 5/13

This course starts with the concept of "mesoscale" and then goes into those aspects associated with fronts, jet streaks, and tropical storms. Much of the remaining part of the course is related to the mesoscale phenomena and meteorological factors associated with severe convective weather and includes forecasting these events through forecasting exercises.

MT5550.02 **CRN: 30315** **ST:MICROMETEOROLOGY**
Plymouth STAFF
3 Credits
Meeting dates and instructor TBA.

Students will study the process involving the exchange of momentum, heat and moisture between the lowest portion of the atmosphere and the underlying surface of the Earth. Topics will include local energy budgets, soil heat transfer, the planetary boundary layer, turbulence, and neutral and diabatic surface layers.

MT5700.01 **CRN: 30316** **GRADUATE SEMINAR METEOROLOGY**
Plymouth – Boyd Hall 306 James Koerner koerner@plymouth.edu
1 Credit
Wednesday 4PM – 5PM 2/10, 2/24, 3/10, 3/17, 3/31, 4/14, 4/21, 4/28, 5/12
Friday 3:30PM – 5PM 2/5, 3/5, 4/9, 5/7

Provides graduate students with a forum to publicly present and discuss their results from literature reviews, case studies, and/or research. This is a required course for all MS in Applied Meteorology students. This course can be repeated for credit twice for a total of three credits.