

Lectures: MWF 11:15 – 12:10 ET 110 (Period 4)
Labs: M 1:30 – 2:50 pm LI 1002 (MM Lab)
M 3:00 – 4:20 pm LI 1002 (MM Lab)

Instructor: Dr. Eugenio Arima

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Office Hours: Tuesday 9:00 – 12:00

Thursday 9:00 – 12:00

or by appointment

1. **Course description:** Geographic Information Systems (GIS) modeling capabilities have been used to inform and support decision making in the management of watersheds and parks, in the design of emergency evacuation plans, among others. Advanced GIS will cover a wide range of modeling applications using rasters, including watershed drainage analysis, ecological corridors and least cost path analysis. Students will also be introduced to analytical tools such as spatial data interpolation techniques, point pattern and density analysis, and error assessment. Hands-on experience will be provided through weekly labs and final project.
2. **Course goals are to:** a) expand and refine GIS concepts, applications, and analysis beyond the introductory GIS course. You will be exposed to a) modeling with raster data; b) basic concepts of geostatistical analysis; c) GIS programming and script languages; and c) computer based visualization tools.
3. **Course structure:** the course will be presented in lecture and lab format. You are expected to attend classes and labs and to read the assigned material.
4. **Blackboard:** Information such as syllabus and schedule will be posted on BLACKBOARD. Information about the BLACKBOARD system may be found at the link below.

<http://courses.hws.edu/>

5. **Textbooks:**

Required:

Chang, K. Introduction to Geographic Information Systems. 5th Edition. McGraw Hill. ISBN: 978-0-07-352283-8

Reading Assignment: journal articles will be assigned during the semester and you are expected to read them and **come prepared** to discuss in class.

6. **Assessment:** grading will be based on a combination of labs, exams, and a final project, according to the following percentage:
Labs: 30%
Exams: 30%
Final Project: 30%
Participation: 10% (mostly from readings' discussions)
7. **Make-up policy:** due dates are firm. Make-up exams require that your Dean notifies me of a serious illness, a family emergency, or other extenuating circumstances. I will **deduct** points for labs, assignments, and project turned in late.
8. **Athletes:** if you have to be absent because of competitions, let the instructor know BEFORE the event.
9. **Academic dishonesty:** “Each student accepts the responsibility to carry out all academic work with complete honesty and integrity and to support the application of this principle to others.”
(<http://www.hws.edu/academics/deans/ws/discipline.asp>). Plagiarizing, cheating, copying or photocopying someone else's work is a violation of HWS principles of academic integrity and will result in course failure.
10. A Note about the **Center for Teaching and Learning (CTL):** “Hobart and William Smith Colleges encourages students to seek the academic collaboration and resources that will enable them to do their best work. Students who would like to enhance their study skills, writing skills, or other academic skills may visit the CTL web site at <http://www.hws.edu/academics/ctl/index.aspx> or contact the CTL at x3351.
- Disability Accommodations: If you are a student with a disability for which you may need accommodations, you should self-identify and register for services with the Coordinator of Disability Services at the Center for Teaching and Learning (CTL), and provide documentation of your disability. Disability related accommodations and services generally will not be provided until the registration and documentation process is complete. The guidelines for documenting disabilities can be found at the following website: <http://www.hws.edu/disabilities>*
- Please direct questions about this process or Disability Services at HWS to David Silver, Coordinator of Disability Services, at silver@hws.edu or x3351.*
11. **Decorum:** while I am lecturing, PLEEEASE do NOT check emails or chat in the internet (in particular if you bring your laptop to class), and avoid arriving late to class/labs or leaving early. Be as courteous as you would be in a professional meeting.
12. **A final note:** we should have a fun and productive semester. If things are not progressing the way you wish during the semester, please let the instructor or the

chair of the Environmental Studies Program (Prof. Tom Drennen) know either directly or anonymously so issues may be dealt with as soon as possible.

13. TENTATIVE Schedule

DATE	Topic	Assignment Due
Week 1 Aug 31 – Sep 4	Introduction to the course Review of Projections and Coordinate Systems.	
Week 2 Sep 7 – Sep 11	Raster data model Interpolation	
Week 3 Sep 14 – Sep 18	Terrain Analysis – first and second derivatives	Lab 2 report
Week 4 Sep 21 – Sep 25	Hydrological modeling	Lab 3 report
Week 5 Sep 28 – Oct 2	Viewshed analysis	Lab 4 report
Week 6 Oct 5 – Oct 9	Least cost path analysis	Lab 5 report EXAM 1 on Oct 9
Week 7 - Recess Oct 14 – Oct 16	Corridor analysis & Land Cover Change (no lab on Monday)	Lab 6 report
Week 8 Oct 19 – Oct 23	Analyzing spatial patterns	
Week 9 Oct 26 - Oct 30	Analyzing spatial patterns	Lab 7 report
Week 10 Nov 2 – Nov 6	Advanced Visualization Techniques	Lab 8 report
Week 11 Nov 9 – Nov 13	Integrating GIS and Google Earth	Lab 9 report
Week 12 Nov 16 – Nov 20	Guest Speaker?	Lab 10 report
Week 13 Nov 23	Project Thanksgiving	EXAM 2 Nov 23 Lab 11 report

Week 14 Nov 30 – Dec 4	Project	
Week 15 Dec 7 – Dec 11	Project	
Week 16 DEC 17, THU	Finals Week Project Presentations 7 – 10 PM	