NOTE to prospective students: This syllabus is intended to provide students who are considering taking this course an idea of what they will be learning. A more detailed syllabus will be available on the course site for enrolled students and may be more current than this sample syllabus.

Subject & Course: Geo 465/565, Geographic Information Systems & Science
Credits: 4
Instructor’s name: Kuuipo Walsh, M. Sc.
Instructor’s email and/or phone: kuuipo.walsh@oregonstate.edu
Link to instructor’s website: http://ceoas.oregonstate.edu/profile/walsh/
TA’s name:
TA’s email:

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

OSU catalog course description, including pre-requisites/co-requisites:

Introduction to modern spatial data processing, development, and functions of geographic information systems (GIS); theory, concepts and applications of geographic information science (GISci).

Prerequisites: None

Course content:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Lab Due Dates and Recommended Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tue Week 1</td>
<td>1 - Introduction</td>
<td>Web Site of the Week (WSW)</td>
</tr>
<tr>
<td>Thur Week 1</td>
<td>2 - What is a GIS? What is GIScience?</td>
<td>Longley et al., Preface, Chapter 1</td>
</tr>
<tr>
<td>Tue Week 2</td>
<td>3 - What is GIS/GIScience (cont.)</td>
<td></td>
</tr>
</tbody>
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This course is offered through Oregon State University Extended Campus. For more information, contact:
Web: ecampus.oregonstate.edu Email: ecampus@oregonstate.edu Tel: 800-667-1465
<table>
<thead>
<tr>
<th>Day</th>
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<th>Topic</th>
<th>Chapter/Section</th>
<th>Due/Notes</th>
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</thead>
<tbody>
<tr>
<td>Thur</td>
<td>2</td>
<td>4 - The Nature of Geographic Data</td>
<td>Longley et al., Chapters. 3 and 4</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>2</td>
<td>Lab 1 - ESRI Virtual Campus, Getting Started with GIS &amp; Referencing Data to Real-World Locations Using ArcGIS</td>
<td>Lab 1 Due by 11:59 p.m. Pacific Time</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>3</td>
<td>5 - Nature of Data cont.</td>
<td></td>
<td>Option choices due</td>
</tr>
<tr>
<td>Thur</td>
<td>3</td>
<td>6 - Partnerships / SDI / Metadata</td>
<td>Longley et al., Chapter 19</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>3</td>
<td>Lab 2 - Vectors: Exploring a Marine Sanctuary</td>
<td>Lab 2 Due by 11:59 p.m. Pacific Time</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>4</td>
<td>7 - SDI/Metadata cont.</td>
<td></td>
<td>WSW 1</td>
</tr>
<tr>
<td>Thur</td>
<td>4</td>
<td>8 - GIS Data Capture: Getting the Map Into the Computer</td>
<td>Longley et al., Chapters. 8 and 9</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>4</td>
<td>Lab 3 - Rasters: Stormwater Pollution</td>
<td>Lab 3 Due by 11:59 p.m. Pacific Time</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>5</td>
<td>9 - Map Into the Computer (cont.) Review for Midterm</td>
<td>Longley et al., Chapters. 8 and 9</td>
<td>Learning Assessment - Practice Midterm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See also the topology practice and key</td>
</tr>
<tr>
<td>Thur</td>
<td>5</td>
<td>MIDTERM EXAM via Blackboard</td>
<td>Get good sleep, eat good carbs for brain food and take exam in one sitting.</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>5</td>
<td>Lab 4 - Vectors, Rasters: Invisible Boundaries</td>
<td>Lab 4 Due by 11:59 p.m. Pacific Time</td>
<td>Happy Halloween!</td>
</tr>
<tr>
<td>Tue</td>
<td>6</td>
<td>10 - What is Where?</td>
<td>Longley et al., Ch. 10 up to 10.5</td>
<td></td>
</tr>
<tr>
<td>Thur</td>
<td>6</td>
<td>11 - Spatial Analysis I</td>
<td>Longley et al., Ch. 14 up to 14.3.2, Ch. 6</td>
<td></td>
</tr>
<tr>
<td>Fri</td>
<td>6</td>
<td>Lab 5 - ESRI Virtual Campus, Solving Spatial Problems Using ArcGIS</td>
<td>Lab 5 Due by 11:59 p.m. Pacific Time</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td>7</td>
<td>12 - Spatial Analysis II</td>
<td></td>
<td>WSW</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Day</th>
<th>Week</th>
<th>Activity</th>
<th>Reading/Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thur</td>
<td>Week 7</td>
<td>13 - 3-D &amp; Temporal GIS</td>
<td>Longley et al., Chapter 13&lt;br&gt;Article in Nature&lt;br&gt;WSS1 / WSS2 / WSS3</td>
</tr>
<tr>
<td>Fri</td>
<td>Week 7</td>
<td>Lab 6 - Spatial Analysis: Landslide Susceptibility</td>
<td>Lab 6 Due by 11:59 p.m. Pacific Time</td>
</tr>
<tr>
<td>Tue</td>
<td>Week 8</td>
<td>14 - 3-D &amp; Temporal GIS cont.</td>
<td>Google SketchUp</td>
</tr>
<tr>
<td>Thur</td>
<td>Week 8</td>
<td>15 - GIS in Action I&lt;br&gt;Guest Speaker</td>
<td>Longley et al., Chapter 2</td>
</tr>
<tr>
<td>Fri</td>
<td>Week 8</td>
<td>Lab 7 - ESRI Virtual Campus, 3D Visualization Techniques Using ArcGIS</td>
<td>Lab 7 Due by 11:59 p.m. Pacific Time</td>
</tr>
<tr>
<td>Tue</td>
<td>Week 9</td>
<td>16/17 - GIS in Action II&lt;br&gt;Guest Speaker</td>
<td>Review streaming video</td>
</tr>
<tr>
<td>Thur</td>
<td>Week 9</td>
<td>University holiday</td>
<td>No Lecture</td>
</tr>
<tr>
<td>Mon</td>
<td>Week 10</td>
<td>Lab 8 - Terrain Visualization</td>
<td>Lab 8 Due by 11:59 p.m. Pacific Time</td>
</tr>
<tr>
<td>Tue</td>
<td>Week 10</td>
<td>18 - The Future of GIS I</td>
<td>Longley et al., Chapter 20&lt;br&gt;REQUIRED WSS1 / REQUIRED WSS2&lt;br&gt;Practice Final</td>
</tr>
<tr>
<td>Thur</td>
<td>Week 10</td>
<td>19 - The Future of GIS II</td>
<td>Course Evaluations&lt;br&gt;Review for Final</td>
</tr>
<tr>
<td>Fri</td>
<td>Week 10</td>
<td>Bibliographies / Term Papers</td>
<td>All Annotated Bib. Web Sites (Option 1) or Term Papers (Option 2)&lt;br&gt;Due by 11:59 p.m. Pacific Time</td>
</tr>
<tr>
<td>Tue</td>
<td>Week 11</td>
<td>FINAL EXAM via Blackboard&lt;br&gt;&lt;em&gt;Exam will actually be available over a range of days, Dec 4 - Dec 10, to accommodate everyone's schedules.&lt;/em&gt;</td>
<td>Relaaaax!</td>
</tr>
</tbody>
</table>

**Measurable student learning outcomes:**

By the end of this course students should be able to:

- Synthesize and integrate concepts of GIS theory and methodology, including data models, data structures, topology, and spatial analysis.
Understand and articulate what geographic information science is and some of its topics and challenges.
Begin to articulate the role of space as a source for explanation and understanding.
Describe the functional basis of a GIS (i.e., how it works), including how it differs from other computerized systems, and why.
Consider and evaluate the benefits and shortcomings of using GIS for a variety of natural resource applications.
Outline the key data quality issues involved in using GIS and state the importance of metadata.
Demonstrate basic GIS software skills in the Advanced (ArcInfo) portion of ArcGIS for Desktop, as well as basic scientific computing skills.
Understand and articulate what GIS analysis is, understanding also that analysis is at the crux of GIS (not just holding data, organizing data, or making maps).
Be able to perform a rudimentary spatial analysis in ArcGIS 10.2.
More fully articulate the role of space as a source for explanation and understanding.
Synthesize and integrate information, GIS analysis results, and interpretations from the GIS and Spatial Science literature.
Employ written communication and computer technology skills by way of a term paper or web-based annotated bibliography.

Learning resources:
NOTE: For textbook accuracy, please always check the textbook list at the OSU Bookstore website (http://osubeaverstore.com/Academics/). Sample syllabi may not have the most up-to-date information.


Recommended Hardware and Supplementary Software:

- **Computer** - A laptop or desktop computer powerful enough for the computational requirements necessary for GIS coursework is strongly recommended. Each student should have access to a computer with an internet connection. Please consult the OSU Computer Helpdesk if you have questions on recommendations: [http://oregonstate.edu/main/student-laptop-recommendations](http://oregonstate.edu/main/student-laptop-recommendations).

- **Flash drive** - A USB flash drive with a least 2 GB of memory is strongly recommended as a backup for saving your work.

- **Esri’s ArcGIS Desktop software** - Each student must request ONE free copy of Esri’s ArcGIS 10.2.2 for Desktop student version software for use on a personal computer by completing a request via the Request Form: ArcGIS License Request at: [http://my.science.oregonstate.edu/software/esri_order](http://my.science.oregonstate.edu/software/esri_order).

Each student will receive a fully-functioning version that will expire one year after installation. Please note that ArcGIS software runs on Windows. In order to run ArcGIS 10.2.2 in Windows on an Intel-based Mac, virtualization software is needed. You are responsible for installing and maintaining your software on your personal computer.
Evaluation of student performance:

Grading is based on results of Labs, Tests, and projects as follows:

- Midterm: 20%
- Final: 30%
- Labs: 20%
- Project: 30%

Sample Weighted Percentage Calculation:
TOTAL=((M/100)*20)+((F/150)*30)+((L/400)*20)+((P/50)*30)
where M = midterm score, F = final exam score, L = cumulative lab score, P = term project

End-of-the-Term Weighted Percentages:

- A = 95 - 100
- A- = 90-94
- B+ = 85-89
- B = 80-84
- B- = 75-79
- C+ = 70-74
- C = 65-69
- C- = 60-64
- D+ = 55-59

♦ Course Policies:

♦ Exam Policies — Makeup exams will be given only for missed exams excused in advance by the instructor. For missed exams that can be anticipated ahead of exam time, advance permission from the instructor to miss the exam will be necessary. Excused absences will not be given for airline reservations, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will generally not be given after the absence has occurred, except under very unusual circumstances. Regrades of exams will be performed when there is an error and the student requests it. All requests for regrading must be made within 3 class days of the day the exam is returned. After that period of time, grades will be fixed and will not be changed.

♦ Incompletes — Please take this course only if you plan to finish it in a timely manner (i.e., during this term)! I assign an "I" or incomplete only when there is a strong and compelling case for doing so (e.g., health reasons, military commitment), and will request that the work be made up before the end of the following quarter. Further, I will not consider assigning an incomplete unless the individual has completed over 50% of the course tasks (i.e., Labs 1-4 and the midterm exam). Please note also that students receiving incompletes are subject to assignment weight reduction (and consequently may not be eligible for A or A- grades) because their work will have been submitted late. If you have completed at least 50% of the work in the course and still need more than one year to make up the "I" grade, you must petition within that first year to be granted more time. You may request a petition form from either the Registrar's Office or Ecampus (contact the Student Services Specialist). You must then gather the appropriate signatures. If all required signatures can be obtained on campus, Ecampus can help you to gather them.

Statement Regarding Students with Disabilities:

This course is offered through Oregon State University Extended Campus. For more information, contact:
Web: ecampus.oregonstate.edu Email: ecampus@oregonstate.edu Tel: 800-667-1465
Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS), with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

**Expectations for Student Conduct**

Student conduct is governed by the university’s policies, as explained in the Office of Student Conduct: Information and Regulations.

**Academic Integrity**

Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit Avoiding Academic Dishonesty, or contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:
a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student’s own efforts or the efforts of another.

b) It includes:

(i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

(ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

(iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

(iv) TAMPERING - altering or interfering with evaluation instruments or documents.

(v) PLAGIARISM - representing the words or ideas of another person or presenting someone else’s words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else’s opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

**Conduct in this Online Classroom**

Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university’s regulations regarding civility.

Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this online course, paying particular attention to the following:
• Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
• Read your posts carefully before submitting them.
• Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
• Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

Tutoring

NetTutor is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real time environment. They also have an online writing lab where tutors critique and return essays within 24 to 48 hours. Access NetTutor from within your Blackboard class by clicking on the NetTutor button in your course menu.

Student Assistance:

Contacting the instructor — Please contact me through email or postings to the discussion boards, depending upon the type of question. I check email VERY frequently and will respond to course-related questions 1-2 business days. I may NOT be logging-on on Saturdays and Sundays, so please plan ahead.

Technical Assistance — If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.

COURSE SITE LOGIN INFORMATION

Information on how to login to your course site can be found HERE.

Course Evaluation:

OSU Student Evaluation of Teaching — Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the 19 multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions by Ecampus. You will login to “Student Online Services” to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.

This document is a modified version of the Ecampus Syllabus Template at: http://ecampus.oregonstate.edu/faculty/manual/syllabus.htm

REFUND POLICY INFORMATION

Please see the Ecampus website for policy information on refunds and late fees.