This course will provide an overview of Geographic Information Systems (G.I.S.) and the related topics of G.P.S. (global positioning systems) and Remote Sensing, as tools for the study and management of natural resources. Of benefit to nearly everyone who manages or studies any area of the earth is an understanding of the tremendous power of G.I.S. for display and analysis of spatial datasets—in other words, when and why to use G.I.S., G.P.S. and Remote Sensing.

At the end of the course, students will know the basic concepts underlying this technology, how each is applied, and what types of data are generated. Issues of scale and data quality will be discussed. Students will explore case studies that demonstrate a range of management and research questions utilizing these technologies in natural resources and related fields. (Note that this course does not attempt to train students in the use of G.I.S. software.)

Course management, content, and instruction will be web-based.

Anticipated student activities include: web-based tutorials on G.I.S., G.P.S. and Remote Sensing; interactive mapping; web searches on topics of specific interest that are reported back to the class; and class discussions on questions submitted by the instructor and students. Students will investigate ways in which G.I.S., G.P.S., and Remote Sensing are applied in the student’s field of interest within the natural resources, environmental sciences and agriculture.

Weekly Topics

1. Introduction to GIS
2. GIS basics
3. Internet mapping; Map basics and map quality
4. Geospatial data; Metadata
5. Analysis using GIS
6. GPS
7. Aerial photography and related topics
8. Remote sensing basics
9. Remote sensing topics of interest
10. Integration of concepts; Extensions
Week 1: Overview of the course and introduction to the major topics.

Objectives for Week 1:

?? Orient students to the course by providing an overview of the subject and an explanation of the grading procedures and expectations.

?? Have students check their Web-readiness and give them alternate methods for obtaining some of the material.

?? Help students get comfortable with the tools for maximizing their communication with the instructor and the other students throughout the course.

Assignments, Week 1:

#1. **Familiarize yourself with Blackboard**, the Web environment that we will use for this course.

First, go to [http://www.onid.orst.edu](http://www.onid.orst.edu) to sign up for a user account and specify a password in the ONID system. Be sure to indicate your email forwarding information so that email from me is forwarded to your active email account. Once you have activated your ONID account you can login to Blackboard at [http://my.oregonstate.edu](http://my.oregonstate.edu) to access your courses. This course will be named FW303_400_[term], where term is specified with a letter and the year (e.g. Winter term 2002 would be W2002).

Bookmark your login page for fast return in the future.

There is a Manual under Tools that explains in detail how to use this website. You will use this website for: learning activities and information, on-line quizzes, submitting assignments, discussing topics with other students, communicating by email, and tracking your grade. **Make sure you can find each of these components in the course website.**

#2. **Introduce yourself** to the class by posting information on the Student Homepage in Blackboard (see Tools, Edit Your Homepage).

?? Where do you live and why are you taking the course?

?? What are your goals and special interests?

?? Have you had any previous experience with Geographic Information Systems?

?? Please specify your area of interest in natural resources: fisheries, wildlife, forestry, agriculture, conservation biology, marine systems, air/water quality, other (describe).

?? Is this your first Distance Education course, or have you had previous experience?

?? Are you comfortable with use of the Internet/Web, or is this new for you?

?? Attach a jpeg or html image of yourself for fun, if you wish! (optional)

?? I recommend that you not include your SSN, phone, or street address, in the interests of privacy.

#3. **Take a quick overview** of the course topics and check out your computer functionality at the same time.

We will depend upon the Internet for gathering information and learning the concepts of Geographic Information Systems in this course. **Internet access is mandatory for this course.** You will need Netscape 4.05 or later OR Internet Explorer 4.01 or later.
Free downloads are available at:
(Netscape)  http://home.netscape.com/computing/download/index.html
(Internet Explorer)  http://windowsupdate.microsoft.com/

I’m a little concerned that some of you may get frustrated with the amount of time it will take to load some of the information-rich webpages we will be using. If you are on a telephone modem, I guarantee that you will be waiting several minutes for some of the satellite images to load. On the bright side, we have had students successfully complete the course using phone modems (even from the Bay of Fundy in Nova Scotia, Canada!)

What options do you have? Perhaps there is a high-speed connection at a local library, community college, or school that is available to you. Think about whether 30 minutes at the library computer would work out better for you than 2 hours on your home computer. Maybe you prefer to work at home and can use your time productively while you are waiting for downloading pages by reading, tying flies, sewing, catching up on correspondence --?

In the process of checking out your computer, you will also see where we are heading during the next 10 weeks. I hope it looks as interesting to you as it is to me. **Test your web connection and your computer’s fitness for duty** by looking at the following sites (bookmark each as they will be used extensively in this course):

- NASA tutorial on remote sensing (http://rst.gsfc.nasa.gov)
- ESRI (http://www.esri.com)
- GIS education (http://www.gis.com)
- Trimble GPS tutorial (http://www.trimble.com/gps/)
- USGS (http://ask.usgs.gov)
- Canadian Centre for Remote Sensing, tutorial (http://www.ccrs.nrcan.gc.ca/ccrs/)
- NASA’s Visible Earth (http://www.visibleearth.nasa.gov/)

**Spend about 25-30 minutes at each site** (we’ll be back!). Visit some of the websites listed for you under External Links in Blackboard. Cruise around and see how your Internet connection and your computer perform for you.

View the streaming video “Earth Science – Pure Knowledge, Practical Applications” at this other NASA site: http://www.earth.nasa.gov/multimedia/index.html (Skip it if the download takes too long!)

**TUTORIALS, options**

If your computer/Internet connection can’t handle the remote sensing tutorial on the Canadian Centre for Remote Sensing website, you should try the download from their site, available for PC, Mac, and UNIX platforms.

We will also use the tutorial on the NASA website, mostly for reference and additional satellite photos. If your computer can’t access the NASA tutorial without major complaints, you should order the CD immediately, so that you will have it in time to use in the latter part of the course. The CD is available from the OSU Bookstore for a nominal price (1-800-595-0357) or you can order it directly from NASA with 4 – 6 weeks’ delivery time (http://rst.gsfc.nasa.gov/cdrom.html). Note that the NASA
information on the Web is kept up-to-date and is preferable if your Internet connection makes it reasonable for you.

I have a few copies of the GPS Tutorial from Trimble to loan to students who have trouble accessing the tutorial on the Trimble website. Again, it is preferable to access the Internet site as it will be kept up to date by the experts at Trimble. Let me know if you want me to send you the tutorial on CD.

**Report back to me via the course website (Communication Discussion Board Forum on “Assignments”), as to the results of your Week 1 assignment, part #3.**

**#4. Begin your assignment for Week 2.** Read all the topics under the heading “What is GIS” and “Data for your GIS” at [http://www.gis.com/](http://www.gis.com/) Explore the uses of GIS in Natural Resources under the heading “GIS for your specialty” at the same site. Please view a variety of examples, not just in your area of specialization. Begin collecting ideas for your written report. Prepare for a quiz over these concepts at the end of Week 2. Additional instructions for Week 2 will be posted on the course website.

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**ASSIGNMENTS AND GRADING**

**Preparation Time**

The expectation is that you will be spending an average of 9 hours per week on this three-credit course, including the time you spend on Internet information, tutorials, assignments, quizzes, and preparing your written report. Please keep this expectation in mind as you cover the material each week.

**Weekly quizzes and assignments (50%)**

You will be required to complete a weekly assignment and/or a weekly quiz each week. When preparing for a quiz, complete all of the suggested weekly activities and review your work, then take the quiz without looking at any of your notes. You may then retake the quiz one additional time, after consulting any references you wish and will keep the final score for that quiz. This process will increase your long-term retention of knowledge.

Quiz material will be cumulative – In other words, don’t be surprised if you are asked a question from Week 2 on the Week 5 quiz.

**Participation in Discussion Groups (10%)**

Discussion groups will be set up within Blackboard for students to share information and help with editing final written papers. (Communication Discussion Board Forums other than “Assignments and Feedback” will count toward this requirement.) These Discussion Boards are an important part of the course and add a lot to your knowledge and enjoyment of the course, so please give them adequate time and effort.

**Written Report (40%)**

Rather than requiring midterm and final exams, I am assigning a written report so that each student can complete a personally meaningful learning experience, based on your professional interests and needs.
The general topic for this paper is: “How are these technologies (GIS, GPS, Remote Sensing) used in your area of interest/specialization in natural resources?”

Requirements for the written report

Submit your topic by Week 3.

The paper should be a minimum length of 10 pages text, typed, double-spaced (or 5 pages single-spaced), not counting illustrations or references. Maximum length is 16 pages of text. All papers must be well organized, succinct, and use good sentence construction and correct spelling. Please use font size 12, margins 1”, Times New Roman or equivalent font.

In addition to Internet sources, the services of the OSU Valley Library are available to you as OSU students. You may check the map collection web site (http://osulibrary.orst.edu/research/guides/maps/maproom.htm) and contact the map librarian, Shirley Scott directly about your needs for this assignment. Shirley.Scott@orst.edu The University of Oregon map library has an excellent GIS web page at http://libweb.uoregon.edu/map/GIS/gisindex1.htm You may access other OSU library resources at http://osulibrary.orst.edu/offcampus/bridge.htm

The preferred file format for submitting your paper is Microsoft Word. Please submit electronically, via the Digital Drop Box in the course website or by sending as an attachment to my email. You can insert the required maps into your Word document using the “Insert – Picture – From File” procedure in Word.

Include at least 3 GIS maps in your paper to support your topic.

You must make use of at least one web-based interactive mapping site.

You may also use PC-or Mac-based software programs to make GIS maps for your research paper (optional).

Specify the software and/or website used to produce each map.

Maps may also be obtained as images from applications documented on the Internet (jpeg or gif formats work the best).

Cite all references, including maps and Internet sources, using CBE (Council of Biology Editors), Scientific Style and Format. Run a search on the Internet to see examples of CBE scientific citations or check with your local library or OSU library for reference. A short list of examples is given at http://www.bedfordstmartins.com/online/cite7.html#1)

You must cite any words and ideas that are not your own, including paraphrased information! For citations within the text, use the author, date format.

Do NOT copy from the Internet! In the past I have had to file OSU Academic Integrity reports on students who have cut and pasted from Internet articles.

There are search engines out there that pop up the pages within 10 seconds of the time that I enter a suspicious phrase. Do us both a favor and don't even consider cheating(!)

Interview at least one GIS expert working in your area of specialization and include his/her comments in your research paper. The interview may be done in person, over the phone or via email. Cite this person in your paper and include contact information.
You may cooperate with other members of the class to exchange ideas on each other’s papers, share sources of information, edit each other’s drafts – but you must adhere to the principles of academic integrity, outlined in the course syllabus and in OSU student guidelines. This report must be your product exclusively. Your final written report is due no later than Wednesday of Finals Week (Week 11).

INCOMPLETES
To avoid an incomplete, you must finish and submit all Blackboard activities (quizzes, assignments, etc.) and the written report before the end of finals week. If extenuating circumstances have arisen in your life that make it difficult to complete this course in one term, please notify me. I will consider giving you an extension for completion of your written report, provided you complete all of the Blackboard activities within the term you are enrolled.

ACADEMIC INTEGRITY – OSU POLICY
Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

?? cheating- use or attempted use of unauthorized materials, information or study aids

?? fabrication- falsification or invention of any information assisting- helping another commit an act of academic dishonesty

?? tampering- altering or interfering with evaluation instruments and documents

?? plagiarism- representing the words or ideas of another person as one's own.

GRADING SCALE

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CONTACT INFORMATION
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