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 Canvas site for enrolled students and may be more current than this sample syllabus.

Course Name: Precision Agriculture  
Course Number: CROP/HORT 414  
Credits: 4  
Instructor name: Andrew Hunt  
Instructor email: Andrew.hunt@oregonstate.edu  
Instructor phone: 541-737-5884

Course Description
Provides insight into the technology available to support precision agriculture and data management planning applications. Examines the concepts and applications of precision agriculture to teach practical use of hardware, equipment and software. An overview of current technology including autonomous vehicles, GPS, soil and crop proximal sensors, imagery and mapping, variable rate control systems, and yield monitors.

Communication
Please post all course-related questions in the General Discussion Forum so that the whole class may benefit from our conversation. Please email your instructor for matters of a personal nature. The instructor will reply to course-related questions and email within 24-48 hours. I will strive to return your assignments and grades for course activities to you within five days of the due date.

Course Credits
Include the number of hours the course meets per week/term in lecture, recitation, laboratory, etc. In the case of online courses, please comment on the number of hours on average that students will interact with course materials. For example, "This course combines approximately 90 hours of instruction, online activities, and assignments for 3 credits."

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.

Learning Resources
Notes to prospective students:

- You may purchase the textbook new and it will provide you with the GIS software, data sets, and assignments that you will need for class. A used book will not have a valid password for the software and may be missing the required CDs. You may also request a license for the software from OSU at http://is.oregonstate.edu/service/software/arcgis. Please request ArcGIS 10.0. I will post each chapter of the textbook online but I encourage you to get your own book.
- Please note that ArcGIS for Desktop is not certified or supported on the Mac operating system. However, if you have an Apple computer running Windows, you can install ArcGIS for Desktop using VMWare, BootCamp, or Parallels.
- If your computer is running Windows 8, you will need to install ArcGIS version 10.1.

**Note to prospective students:** Please check with the OSU Bookstore for up-to-date information for the term you enroll (OSU Bookstore Website or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

**Canvas**
This course will be delivered via Canvas where you will interact with your classmates and with your instructor. Within the course Canvas site you will access the learning materials, such as the syllabus, class discussions, assignments, projects, and quizzes. To preview how an online course works, visit the Ecampus Course Demo. For technical assistance, please visit Ecampus Technical Help.

**Measurable Student Learning Outcomes**
- Students will learn fundamental GIS concepts and gain basic ArcGIS skills.
- Students will describe the range of GPS equipped equipment used in agriculture.
- Students will produce GIS maps and analyze simple datasets.
- Students will solve case-study based issues with GPS and GIS.
- Students will summarize the use of information technology by agricultural industries.

**Evaluation of Student Performance**
- Discussions (6) – 120 points
- Geocaching report – 30 points
- Class Project – 160 points
- Lab tutorials (7) – 210 points
- Midterm Exams (2) – 280 points
- Final Exam – 200 points
- Total – 1000 points
- Students are responsible for contributing to all of the six online discussions. The first online discussion post of the week will be due midnight Wednesday, second and third posts due by midnight Sunday.

- Students will choose the topic of their class project according to their own interests. The project will consist of at least five unique datasets, some analysis of those datasets, and a resulting map that could be useful to the general public. Examples of possible projects will be discussed during the term.
• Oral presentations of the class project will be given via any of the following:
  o 15 minute SlideRocket or Prezi presentation with narration,
  o Documentary-style 15-minute YouTube Video, or
  o 15-minute screencast (Screencast-O-Matic.com or Screenr.com) of a PowerPoint presentation with narration.

• There will be a lab assignment due each week.

**Grading Scale (%)**

Note that these percentages will be of the highest score in the class and not necessarily of the 1000 possible points.

<table>
<thead>
<tr>
<th>Grade</th>
<th>92-92</th>
<th>87-89</th>
<th>83-86</th>
<th>80-82</th>
<th>77-79</th>
<th>73-76</th>
<th>70-72</th>
<th>67-69</th>
<th>63-66</th>
<th>60-62</th>
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<td>A</td>
<td>B+</td>
<td>B</td>
<td>B-</td>
<td>C+</td>
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<td>C+</td>
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<td>D+</td>
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**Course Content**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading Assignments</th>
<th>Learning Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Introduction to ArcGIS: Addressing real-world problems</td>
<td>Load software Online discussion-self introductions Reading assignments (5)</td>
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<tr>
<td></td>
<td>What are information systems?</td>
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<td>2</td>
<td>Geographic Positioning Systems</td>
<td>Map design</td>
<td>Online discussion-GPS and geocaching Geocaching report GIS tutorial 1 Reading assignments (3)</td>
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<td>Geocaching</td>
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<td>Geographic Information Systems</td>
<td>GIS outputs</td>
<td>GIS tutorial 2 Reading assignments (5)</td>
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<td>4</td>
<td>Project proposal outline</td>
<td>File geodatabases</td>
<td>GIS tutorial 3 Project proposal Reading assignments</td>
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<tr>
<td>Week</td>
<td>Topic</td>
<td>Reading Assignments</td>
<td>Learning Activities</td>
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<td>specifications</td>
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<td>Review of labs 1-3 GIS data architecture</td>
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<td>Exam</td>
<td>Spatial Data</td>
<td>Exam 1</td>
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<td>Review exam</td>
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<td>Online discussion- peer review of project proposals</td>
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<td>GIS tutorial 4</td>
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<td>6</td>
<td>Remote sensing</td>
<td>Digitizing</td>
<td>Online discussion- uses of Information Systems in Ag</td>
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<td>GIS tutorial 6, Reading assignments (3)</td>
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<td>Nutrient management</td>
<td>Geoprocessing</td>
<td>GIS tutorial 8, Reading assignments (2)</td>
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<tr>
<td>8</td>
<td>Applications of GIS in Agriculture</td>
<td>Spatial analysis</td>
<td>Online discussion- uses of remote sensing in agriculture</td>
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<td>Review of labs 4, 6, 7</td>
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<td>GIS tutorial 9, Reading assignments (1)</td>
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<td>Exam</td>
<td>3D analyst-optional</td>
<td>Exam 2</td>
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<td>Exam review</td>
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<td>Online discussion-uses of GIS in agriculture</td>
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<td>GIS tutorial 10, Reading assignments (1)</td>
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<td>10</td>
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<td>Project written report</td>
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<td>Finals</td>
<td>Final Exam</td>
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Course Policies

Discussion Participation
Students are expected to participate in all graded discussions. While there is great flexibility in online courses, this is not a self-paced course. You will need to participate in our discussions on at least two different days each week, with your first post due no later than Wednesday evening, and your second and third posts due by the end of each week.

Proctored Exams
This course requires that you take exams under the supervision of an approved proctor. Proctoring guidelines and registration for proctored exams are available online through the Ecampus testing and proctoring website. It is important to submit your proctoring request as early as possible to avoid delays.

Makeup Exams
Makeup exams will be given only for missed exams excused in advance by the instructor. 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.

Exam Time Limits
Exams in this class are timed; if you exceed the time limit on an exam, you will be assessed a penalty of 10% for every five minute interval beyond the time limit.

Incompletes
Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible (in other words, usually everything but the final paper). If you are having any difficulty that might prevent you completing the coursework, please don’t wait until the end of the term; let me know right away.

Guidelines for a Productive and Effective 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.
Statement Regarding Students with Disabilities
Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Accessibility of Course Materials
All materials used in this course are accessible. If you require accommodations please contact Disability Access Services (DAS).
Additionally, Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities.

Expectations for Student Conduct
Student conduct is governed by the university’s policies, as explained in the Student Conduct Code.

Academic Integrity
Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit Student Conduct and Community Standards, 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 postings) in compliance with the university's regulations regarding civility.

**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 Canvas class by clicking on the Tools button in your course menu.

**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 via ONID by the Office of Academic Programs, Assessment, and Accreditation. You will log in 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.