



COURSE OUTLINE

Geocaching and the Global Positioning System

Instructor: Jessica L. Fitterer
Office Hours: *By appointment*
Office Location: DTB A247
Contact: jessyka@uvic.ca

Teaching Assistant: Gillian Harvey (gharvey@uvic.ca)

Class Time: Monday-Friday, 9:30 am – 4:20 pm (including 1 hour for lunch)
Classroom: COR A229
Labs: DTB A251
Exam: *Location TBA:* Friday, August 19 2016, 9:30 am – 11:20 am

COURSE DESCRIPTION

In May, 2000, the United States government removed “Selective Availability” – the means by which Global Positioning System (GPS) accuracy was intentionally degraded for security reasons. Overnight, the accuracy of civilian GPS systems increased tenfold. Since this time, GPS use has been rapidly integrated into all manners of daily life, including commercial, transportation, and recreational applications. One increasingly popular recreational use of GPS is the activity of *geocaching*, a high-tech game of ‘hide and seek’ in which users locate hidden containers using coordinates and GPS receivers.

The goal of this course is to introduce students to the activity of *geocaching*, along with the fundamentals of GPS navigation, and GPS data collection. Emphasis will be placed on geocaching, the history and workings of GPS and associated navigation systems, map datums and coordinate systems, and basics of GPS data management. Students will gain hands-on experience operating and working with GPS units in the field, through a variety of geocaching activities and assignments. Examples of the use of GPS in geographical research will be demonstrated through lectures and readings. A final project requires students to create and hunt for geocaches on the UVic campus.

This course is suitable for students from any background. Strong participation in a group environment and willingness to be outdoors are fundamental to success in this course.

KEY THEMES: Geocaching, GPS, Navigation, datums

READINGS

Dobson, J. E., & Fisher, P. F. (2003). Geoslavery. *IEEE Technology and Society Magazine*, 22(1), 47–52.
doi:10.1109/MTAS.2003.1188276

- Goodchild, M. F. (2007). Citizens as sensors: The world of volunteered geography. *GeoJournal*, 69(4), 211–221. doi:10.1007/s10708-007-9111-y
- Ishikawa, T., & Takahashi, K. (2013). Relationships between Methods for Presenting Information on Navigation Tools and Users' Wayfinding Behavior. *Cartographic Perspectives*, 75(75), 17–28.
- Ishikawa, T., Fujiwara, H., Imai, O., & Okabe, A. (2008). Wayfinding with a GPS-based mobile navigation system: A comparison with maps and direct experience. *Journal of Environmental Psychology*, 28(1), 74–82. doi:10.1016/j.jenvp.2007.09.002
- Mathews, A. J., Lu, Y., Patton, M. T., Dede-Bamfo, N., & Chen, J. (2013). College students' consumption, contribution, and risk awareness related to online mapping services and social media outlets: Does geography and GIS knowledge matter? *GeoJournal*, 78(4), 627–639. doi:10.1007/s10708-012-9456-8
- Neustaedter, C., Tang, A., & Tejinder, J. K. (2010). The role of community and groupware in geocache creation and maintenance. *Proceedings of the 28th International Conference on Human Factors in Computing Systems - CHI '10*, 1757. doi:10.1145/1753326.1753590
- O'Hara, K. (2008). Understanding geocaching practices and motivations. *Proceedings of the SIGCHI Conference on Human ...*, 1177. doi:10.1145/1357054.1357239
- Schlatter, B., & Hurd, A. (2005). Geocaching 21st-Century Hide-and-Seek. *Journal of Physical Education, Recreation and Dance*, 76(7), 28–32.
-

LEARNING OUTCOMES

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

- Explain basic aspects of coordinate systems and datums;
- Discuss the history and development of satellite navigation;
- Manage and display personal GPS data using a variety of formats.
- Carry out essential functions of a handheld GPS (collecting waypoints, recording tracks, navigating to a position, etc.); and
- Participate in both the creation and consumption aspects of geocaching activities.

EVALUATION

Evaluation will be based on a combination of in-class worksheet activities, a short writing assignment, a geocache project, and a final exam. The break-down of marks is as follows:

Exam = 30%

Worksheets = 15%

Term Paper = 30%

Geocache Group Project = 25%

Exam:

A closed book exam will be given on the Friday morning of the course. The test will consist of multiple choice, true/false, and short answer type questions. The test will cover material from the lectures

(Monday through Thursday) and readings assigned in class.

Worksheets:

Students are required to complete in-class worksheets as part of applied learning portion of the course. Worksheets will be completed both in the classroom and in the field, using materials provided by the instructor. Class time will be given to complete these worksheets. These will be completed in groups as well as individually.

Term Paper:

At the beginning of the course, the instructors will provide the students with three topics for the term paper. Each student will select **one (1)** topic and prepare a SHORT (approx. 1250 word) essay style response. Students are expected to write at a third-year university level, including proper structure, grammar, and a **minimum** of three (3) academic references. Limited class time may be given for working on this assignment, but completion will occur primarily on students' own time. Marks will be deducted for not adhering to the word count requirement.

Group Geocache Project:

Students will work in small groups to complete a geocaching project. This project will consist of the creation of a "cache" on the UVic campus that highlights or showcases some aspect of the campus. Class time will be given to complete this project. Two mini essays will be written by the group on 1) geocache place choice and 2) geocache concept. Students will search for the caches of their fellow students on the last afternoon of the course.

GRADING SYSTEM

As per the Academic Calendar:

Grade	Grade point value	Grade scale	Description
A+ A A-	9 8 7	90-100% 85-89% 80-84%	Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	6 5 4	77-79% 73-76% 70-72%	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	3 2	65-69% 60-64%	Satisfactory, or minimally satisfactory. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	1	50-59%	Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	0	0-49%	Unsatisfactory performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

GEOGRAPHY DEPARTMENT INFO

- Geography Department website: <http://geog.uvic.ca>
- Undergraduate Advisor: Dr. Phil Wakefield – geogadvisor@uvic.ca

ABOUT YOUR INSTRUCTOR

Jessica Fitterer is a PhD Candidate (Department of Geography, University of Victoria) pursuing research with the Centre for Addictions Research to quantify the effects of alcohol access on crime in British Columbia. She specializes in spatial analysis methods and has a background in biodiversity and crime modelling. She earned her MSc degree from the University of Victoria. Over the last five years she has been a specialist instructor for numerous statistics and geomatics courses in the Department of Geography.

POLICY ON LATE ASSIGNMENTS

Due to the condensed nature of this course a strict late policy is being enforced with a **25% deduction for each day late** for worksheets, group project, and term paper. Group projects **will not** be accepted late. Exceptions for missed worksheets and tests will be granted only for medical reasons (requiring a doctor's note stating your inability to complete the assignment) or other extreme personal crises. Only the instructor may enable these exceptions. **DO NOT** contact the teaching assistant regarding these matters.

ATTENDANCE

Attendance is **MANDATORY** for the first and second day of the course (Monday August 15th and Tuesday August 16th). The majority of lecture material is presented these two days. If you do not make it to both of these days you will be dropped from the course. This course has a long wait list, and it is unfair to the students who are wait listed for you to miss a half day (10% of the course), a full day (20% of the course), or both the first and second days (40% of the course). **Attending class throughout the entire week is integral to successfully completing this course.**

PLAGIARISM

Policy on plagiarism: <http://www.uvic.ca/learningandteaching/students/resources/expectations/>
Policy on Academic Integrity: <http://web.uvic.ca/calendar2015-01/FACS/UnIn/UARe/PoAcl.html>

ACCESSIBILITY

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability/health consideration that may require accommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCSd) as soon as possible. The RCSd staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://rcsd.uvic.ca/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

POSITIVITY AND SAFETY

The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members. Students are expected to actively participate in class discussions. Derogatory or foul language will not be tolerated in the classroom. UVic has made a conscientious effort to increase diversity in the student, staff and faculty populations. To ensure all students feel welcome and comfortable in class and group discussions we will all endeavor to be respectful in our language, actions, and examples. Should you have any concerns with the climate of the classroom or any other portions of this course, please don't hesitate to talk to the instructor or the teaching assistant.

COURSE EXPERIENCE SURVEY (CES)

I value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. The survey is accessed via MyPage and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.

CALENDAR

Important dates are here: <http://web.uvic.ca/calendar/general/dates.html>.

DATE	Specifics subject to change
Monday, August 15th	<ul style="list-style-type: none">• Introduction and course outline• Lecture: Datums and coordinate systems, GPS and Navigation, how to use your GPS<ul style="list-style-type: none">○ Readings: Ishikawa et al. 2008; Ishikawa and Takahashi 2013• Worksheet #1: Using Handheld GPS (<u>due by 4:20 pm</u>)• Instruction manuals for GPS units will be posted on <i>Course Spaces</i>
Tuesday, August 16th	<ul style="list-style-type: none">• Lecture: Introduction to geocaching<ul style="list-style-type: none">○ Readings: Neustaedter et al. 2010; O'Hara 2008; Schlatter & Hurd 2005• Worksheet #2: Managing GPS data (<u>due by 4:20 pm</u>)• Time to work on assignments
Wednesday, August 17th	<ul style="list-style-type: none">• Worksheet #3: Geocaching (<u>due by 4:20 pm</u>)• Time to work on group project
Thursday, August 18th	<ul style="list-style-type: none">• Lecture: Applied GPS<ul style="list-style-type: none">○ Readings: Goodchild 2007; Dobson and Fisher 2003; Matthews et al. 2013• Time to work on group project (<u>due by 4:20 pm</u>)
Friday, August 19th	<ul style="list-style-type: none">• Exam (9:30 am to 11:20 am)• Course Evaluation• Class geocache hunt (<u>finished by 4:20 pm</u>)