

SUR 5525 – Least Squares Adjusted Computations

INSTRUCTOR:

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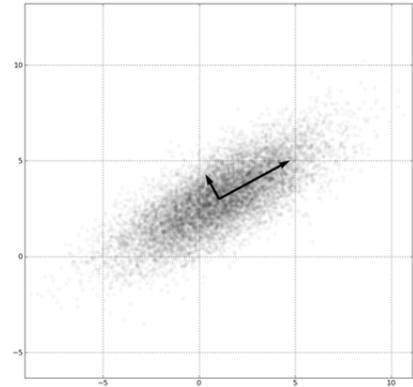
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LECTURES:

Tue: 10:40a-11:30a (per. 4), Thu: 10:40a-12:35p (per. 4+5) via Adobe Connect

Note: With a few exceptions there will be no live lectures. Instead, links to lecture recordings will be provided on the E-Learning platform.

First class: 01/07/14. Last class: 04/22/14

REQUIRED READING MATERIALS:

- Ghilani, C. D. (2010). Adjustment Computations - Spatial Data Analysis (5th Ed.). New York, NY: John Wiley & Sons
- Additional reading material for each session will be made available in advance through the course E-Learning site. (<http://lss.at.ufl.edu/>)

COURSE CONTENT:

This course presents methodologies for analyzing and adjusting errors with a focus on least squares adjustments. It will provide students with a thorough understanding of errors, their sources, and magnitudes.

Topics covered:

- a. Theory of errors, random and systematic errors, statistical distributions, hypothesis testing
- b. Law of error propagation on various types of observations
- c. Principles of Least Squares
- d. Adjustment of horizontal surveys and level networks
- e. Error ellipse

- f. Constraints in adjustments
- g. General Least Squares Adjustment

COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES:

The course objective is to provide students (1) with a thorough understanding of errors, their sources, and magnitudes, and (2) with procedures to account for the presence of errors as they analyze and adjust their data.

At the completion of the course, the student should be able to:

- i. apply methods of statistics to assess and describe the quality of measurements
- ii. apply the theory of error propagation and least-square method on adjustment of geodetic observations
- iii. understand the effect of errors on geodetic observations
- iv. use error ellipses for geodetic network design
- v. utilize adjustment software and spread sheet functions for adjustment computations

GRADING POLICY:

<i>Grade</i>	<i>Percentage</i>	<i>Grade</i>	<i>Percentage</i>
A	90.0-100.0	C+	73.0-74.9
A-	87.0-89.9	C	67.0-72.9
B+	85.0-86.9	C-	65.0-66.9
B	77.0-84.9	D	50.0-64.9
B-	75.0-76.9	F	0-49.9

<i>Grading item</i>	<i>Percentage</i>
Home assignments	40%
Online quizzes and/or discussions	10%
Field lab	10%
Mid-term exam	15%
Final exam	25%
	100%

GRADES AND GRADE POINTS:

For information on current UF policies for assigning grade points, see

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

CLASS FORMAT AND POLICIES

1. This course is primarily taught through recorded lectures, with a part of lectures being delivered live synchronously through the virtual classroom software Adobe Connect.

2. The E-Learning system should be used as the platform for written communication between students and the instructor, where the built-in e-mail or discussion function should be used. Any short-term changes concerning lectures or classes are announced through E-Learning. Feel free to call the instructors with any questions.
3. For each assignment a due date and time is given, which is usually the beginning of the next class.
4. Lecture material can be downloaded from the E-Learning website (<http://lss.at.ufl.edu/>) at least half an hour before class starts.

MISSING AND LATE ASSIGNMENT POLICIES:

1. A 10% penalty per day will be applied to late assignments up to one week after they are due date/time. This means that assignments handed in late on the due date or the next calendar day get a 10% point deduction, for 2 days late this gives a 20% penalty, and so on. Assignments will not be accepted if handed in more than one week (7x24 hours) after the due date/time. If you know in advance that you will be late for an assignment, let the instructor know in advance (via E-Learning), and it will be decided by the instructor whether an exception can be made on a case-by-case basis.
2. There will be no make-up quizzes or make-up exams.

ABSENCES AND MAKE-UP WORK:

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

COMMUNICATION:

The E-Learning system should be used as the primary platform for written communication between students, the instructor, and the TA, where the built-in e-mail or discussion function can be utilized. Any short-term changes concerning lectures or other course components will be announced through E-Learning.

The lecture material can be downloaded from the E-Learning website (<http://lss.at.ufl.edu/>) at least half an hour before the lecture starts.

USING ADOBE CONNECT SOFTWARE:

Live lectures (as announced) and office hour meetings (per individual student requests) will be conducted with the Adobe Connect web conferencing software. The software is accessed by clicking a link posted by the instructor through e-Learning. The instructor will schedule the sessions and post the link to you earlier in the semester.

The following [link](#) explains how to participate in Adobe Connect meetings/sessions. Adobe Connect only requires an internet connection, a web browser, and Adobe Flash Player version 10.1 or higher. Adobe Connect supports nearly any operating system including Windows, Macintosh, Linux and Solaris, as well as the most widely used browsers

including Internet Explorer, Firefox, Safari, and Chrome. A microphone is also needed to communicate with the instructors and the students attending the session.

NOTE - This syllabus is tentative and subject to change. As with all classes, you are responsible to know the course schedule, readings & labs, and check for short term changes in the topics, dates, etc.

ONLINE COURSE EVALUATION PROCESS:

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>. Should you have any complaints with your experience in this course please visit <http://www.distance.ufl.edu/student-complaint> to submit a complaint.

ACADEMIC HONESTY POLICY:

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*"

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

SOFTWARE USE:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

CAMPUS HELPING RESOURCES:

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

SERVICES FOR STUDENTS WITH DISABILITIES:

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/