COURSE SYLLABUS
LS 2400 – Basic Geodesy for today’s GPS Land Surveyor

Instructor Information:
Instructor(s): John Adam
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Course Information:
Delivered and scheduled through the Outreach Credit Program

Prerequisites: None

Course Description:
The history of geodesy including measurement techniques, coordinate systems, ellipsoids, and datums is reviewed. The modern geodetic and Cartesian coordinates systems, as well as the differences between grid and ground coordinates systems, and the current geodetic and Cartesian coordinate systems available today are discussed.

Disability Statement:
If you have a physical, learning, sensory or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 330 Knight Hall.

Objectives/Outcomes/Standards:
On completion of the class the student will understand the concepts of a datum, a projection, and a geoid model. The student will be able to select an appropriate projection and couple it with a geoid model to present data collected using GPS in a Cartesian coordinate system.

Text(s) and Readings: Basic GIS Coordinates(Second Edition), Jan Van Sickle

Course Requirements/Assignments: This course will consist of prerecorded video lectures, teleconferences, exercises and a proctored final exam.

Grading Standards:
15 exercises at 5 points each = 75 points and a proctored final exam at 25 points for a total of 100 points
A = 100 - 90, B = 89 - 80, C = 79 – 70, D = 69 - 60, F = > 60

Attendance/Participation Policy:
University sponsored absences are cleared through the Office of Student Life. Attending the teleconferences is mandatory and attendance will be taken.
Academic Honesty:
The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. Other University regulations can be found at: http://www.uwyo.edu/generalcounsel/new-regulatory-structure/index.html

Course Outline:

1. History of determining the shape and size of the earth
2. History of Coordinate Systems, Ellipsoids and Datums
3. Cartesian Vs. Geodetic Coordinates
4. Differences between Geodetic, Geographic, and Astronomic Coordinates
5. Deflection of the Vertical
6. Relating ECEF Cartesian Coordinates with Geodetic Coordinates
7. Different Ellipsoids
8. Datums: Horizontal Vs. Vertical Datums (NAD 83 Vs. NAVD88)
9. Orthometric Elevations Vs. Ellipsoid Heights
10. Coordinate Systems: State Plane Coordinates
11. Modified State Plane
12. Grid Scale Factor, Ellipsoid Scale Factor, Combined Factor
13. Grid Distances Vs. Ground Distances
14. Geoid Vs. Ellipsoid
15. Inclined Plane Method
16. Geoid Models
17. NGS Data Sheets
18. Differences of WGS-84 (G730/G873/G1150)
19. Differences between NAD83/NAD83(1992)/NAD83(CORS)/NAD83(NSRS)

The instructor may make changes to the syllabus as the course proceeds. If necessary, these changes will be announced in class. Substantive changes made to the syllabus shall be communicated in writing to the students.