

**Department of Civil Environmental and Geomatics Engineering  
Florida Atlantic University  
Course Syllabus**

<b>1. Course title/number, number of credit hours</b>	
Introduction to Geodesy (SUR 3530)	3 credit hours
<b>2. Course prerequisites, corequisites, and where the course fits in the program of study</b>	
Prerequisite: MAC 2282 or MAC 2312 with minimum grade of C	
<b>3. Course logistics</b>	
<p><i>Semester:</i> Spring 2014  This is a live, on-line course  Class time: Monday and Wednesday, 5:00 – 6:20 PM</p>	
<b>4. Instructor contact information</b>	
<p>Dr. Mustafa Berber, P. Eng.  Civil, Environmental and Geomatics Engineering  College of Engineering and Computer Science  Florida Atlantic University  777 Glades Road, Building 36, Room 213  Boca Raton, FL, 33431  Phone: (561) 297 3090  Fax: (561) 297 0493  E-mail: <a href="mailto:mberber@fau.edu">mberber@fau.edu</a></p>	
<b>5. Course description</b>	
<p>The study of ellipsoidal geometry, horizontal and vertical geodetic datums, coordinate systems, solution of spherical triangles, time systems, astronomical azimuth and LaPlace's equation, developable surfaces, basic properties and characteristics of most common map projections with stronger emphasis on the projections used in State Plane Coordinates such as Lambert conformal, transverse Mercator and UTM.</p>	
<b>6. Course objectives/student learning outcomes/program outcomes</b>	
<i>Course objectives</i>	To provide a basic understanding of the shape, motion and gravity field of the earth; to describe the various datums and coordinates systems and their use in practice; and to understand the basic principles of height systems and map projections.
<i>Student learning outcomes &amp; relationship to ABET a-k objectives</i>	<ol style="list-style-type: none"> <li>1. Comprehend Earth's Motion in the Space (a, b, k)</li> <li>2. Understand the gravity field of the Earth and gravity measurement techniques (a, b, e, k)</li> <li>3. Learn Spherical Trigonometry (a, b, e, k)</li> <li>4. Understand Geodetic Coordinate Systems (a, k)</li> <li>5. Understand Map Projections (a, b, e, k)</li> </ol>

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<p><i>Relationship to program outcomes</i></p>	<p><b>Outcome 1:</b> An understanding of professional and ethical responsibility (High)</p> <p><b>Outcome 2:</b> A working knowledge of fundamentals, engineering tools, and experimental methodologies (High)</p> <p><b>Outcome 3:</b> An understanding of the social, economic, and political contexts in which engineers must function (Medium)</p> <p><b>Outcome 4:</b> An ability to plan and execute an engineering design to meet an identified need (Low)</p> <p><b>Outcome 5:</b> An ability to function on multi-disciplinary teams (Low)</p> <p><b>Outcome 6:</b> An ability to communicate effectively (Medium)</p> <p><b>Outcome 7:</b> Graduates will have proficiency in the following areas of civil engineering: (i) structural engineering, (ii) transportation engineering, (iii) geotechnical engineering, (iv) water resources, and (v) environmental engineering (High)</p> <p><b>Outcome 8:</b> Graduates will have an adequate appreciation for the role of civil engineering in infrastructure planning and sustainability including safety, risk assessment, and hazard mitigation (Medium)</p> <p><b>Outcome 9:</b> Graduates will be successful in finding professional employment and/or pursuing further academic studies (High)</p>
<p><b>7. Course evaluation method</b></p>	
<p>Course attendance: 10%</p> <p>Assignments: 30%</p> <p>Mid-term test: 20%</p> <p>Final exam: 40%</p>	
<p><b>8. Policy on makeup tests, late work, and incompletes</b></p>	
<p>Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements.</p> <p>Incomplete grades are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given.</p>	
<p><b>9. Special course requirements</b></p>	
<p>All assigned homeworks must be submitted on or before the posted time. Per day 10% penalty will be enforced for late submissions.</p> <p>To succeed in this course all exams must be taken. The reasons for missing an exam must be documented, i.e. doctor's note etc. An unsatisfactory excuse will result in an F entered for that exam. Make-up exams will be administered for ONLY valid reasons.</p> <p>All exams will be taken on the honor system and must be done by the student ONLY with NO ASSISTANCE FROM ANYONE. A student MAY NOT provide assistance to another student.</p> <p>You are encouraged to work in groups to complete the homework assignments and/or to study together. However, the completed homework assignments must be your own work.</p>	
<p><b>10. Classroom etiquette policy</b></p>	
<p>University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.</p>	

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<b>11. Disability policy statement</b>
In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.
<b>12. Code of Academic Integrity</b>
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at <a href="http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf">http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf</a>
<b>13. Required texts/reading</b>
Geodesy: The Concepts by P. Vanicek and E. Krakiwsky, Elsevier Science B.V., 1986.
<b>14. Supplementary/recommended readings</b>
Geodesy, 3rd Edition, by Wolfgang Torge. Publisher: Walter De Gruyter.
<b>15. Course topical outline, including dates for exams/quizzes, papers, completion of reading</b>
Week 1: Introduction Week 2: History of Geodesy Week 3: Hierarchy of Motions and Kepler's laws Week 4: Newton's laws Week 5: Gravity field of the Earth Week 6: Gravity field of the Earth Week 7: Earth and its Size and Shape Week 8: Earth and its Size and Shape Week 9: Spring Break Week 10: Spherical Trigonometry Week 11: Spherical Trigonometry Week 12: Time Systems Week 13: Geodetic Coordinate Systems Week 14: Map Projections Week 15: Course review