American Public University System

The Ultimate Advantage is an Educated Mind

School of Security and Global Studies **INTL433** **Geographic Information Systems II** **Credit Hours: 3** **Prerequisite: INTL 432, GIS I** **Length of Course: 8 Weeks**

Table of Contents

Instructor Information

Instructor: Name and link to bio

Office Hours via Adobe Connect: [1 hour/wk if teaching one course, 2 hours/wk if teaching 2+ courses], and by appointment.

Please contact your instructor through the Messages tab in the classroom.

After the class is over, instructor contact information: @mycampus.apus.edu.

1

Course Description (Catalog)

Geographic Information Systems (GIS) contain a powerful set of tools for data acquisition, management, query and display. This course will provide students first with a substantial foundation in the history of cartography and mapmaking. The second major emphasis of this course will merge both theoretical and historical information with Hands on practical training utilizing the basic tools provided with the GIS software. Students will become familiar with the importance of metadata, editing and updating metadata and how this is important to the success or failure of the dataset as a whole.

(Note to Students: The resources, assignments, learning outcomes, and expectations in this upper level undergraduate course assume that the student has completed all lower level general education and career planning coursework necessary to develop research, writing, and critical thinking skills. Students who have not fulfilled all general education requirements through courses or awarded transfer credit should strongly consider completing these requirements prior to registering for this course.)

Course Scope

As in GIS I, this course is 8 weeks long, but with the amount of knowledge both in hands-on and via practical exercise/assignments and readings, it's going to fly by! We will cover more advanced basics of GIS, its basic functions and tools, with practical hands-on exercises. Since our medium of instruction is interaction via the Internet, creative and productive use of the worldwide web is integral to all our efforts together in this course. Students are strongly encouraged to support each other in addition to instructor support in this course, make study dates, meeting times in chat rooms, et cetera.

Course Objectives

This course is designed contribute to student's short and long term educational goals while ensuring you obtain the knowledge and skills outlined here. Students need to establish a functional educational relationship between themselves and the instructor as well as a synergistic interface amongst the entire class. Do this through using all relevant features of the present Educator Online Knowledge Management System and maintaining a supportive and collaborative learning experience bolstered by courtesy and respect.

Much of your grade for this course will be based upon the demonstrated mastery of goals outlined in the schedule below. Generally speaking, this program of instruction will offer students the opportunity to learn about spatial relationships among physical and/or human elements. In the real world, this can often be very confusing and overwhelming because it is difficult to mentally incorporate all the factors that may influence a decision or action. GIS presents students with a way to incorporate, manage and visually display all those confusing factors into a convenient and easy-to-understand media: a map. Therefore, by the end of this course, students should have a solid understanding of how to import, manage, analyze, and display answers to spatial research questions using GIS software. Where possible, the military intelligence applications of our weekly work together will be emphasized, although equal focus can be made on governmental and commercial applications. The successful student will be prepared to complete the following learning objectives:

CO-1: Create advanced geospatial maps from the Environmental Systems Research Institute (ESRI) Geographic Information Systems software (ArcGIS), illustrating solutions to research questions.

CO-2: Articulate the use of geographic features and attributes in map production.

CO-3: Explain how the types of features are represented on a map and their use in analytic assessments.

CO-4: Produce a project database

CO-5: Perform varied modeling analyses

CO-6: Present the results of a geospatial analysis via maps, charts, or reports

Table of Contents

Course Delivery Method

Instructional Approach and Course Requirements

This intelligence studies course delivered via distance learning will enable students to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to each student. **Lab assignments are due by the last day of the stated week** and include Forum questions (accomplished in groups through a threaded Forum), and practical exercises (Assignments 1 – 3). Assigned

faculty will support the students throughout this eight-week course. Submit the Forums relative to the readings the week they are assigned, try not to wait until Sunday.

Successful completion of this course will require extensive reading each week, weekly interactions on our Forums, Lab activities using the ArcGIS software (both from the Lab Work Book & the three Assignments). You must complete the assigned readings and hands-on Lab exercises (textbook and any articles) due at the end of each instructional week.

Forums: We can learn as much from each other as we will from the material. The purpose of the weekly discussion questions is to facilitate our getting to know one another and sharing our thoughts about the weekly readings, activities and discussion topic in the Lab or otherwise. Forum participation is 25% of your final grade. In order to achieve maximum credit for your initial Forum the post will reflect having thoroughly read and thought about the topic of the week; consisting of approximately 300 words or otherwise noted in the task. You should have as a minimum of 2 responses consisting of approximately 100 words each. Weekly Forum questions (accomplished in groups in a Forum) require an initial response by Thursday at 11:55 pm ET, with all other required responses due by Sunday at 11:55 pm ET.

Weekly Deliverables: Weekly students are expected to submit (1) a substantive discuss on the topic in the Weekly Forums and respond to other student comments to the posted forums in our classroom, and (2) written or lab exercises are cumulative, that when combined comprise most of the next graded exercise found in Assignments. On occasion the forum and lab are combined as a single graded submission as a forum discussion. Specific directions are in the Lab and Forum material.

Graded Assignments: There are three graded assignments. These are practical exercises worth 75% of your grade, so it is critical to read and follow directions as well as do the weekly exercises in the Lab Work Book. Assignments are due by Sunday at 11:55 pm ET and include all required material submitted for grading.

Exams: There are no exams.

Course Materials

Required Text

Mitchell, Andy. *The ESRI Guide to GIS Analysis, Volume 1: Geographic Pateerns & Relationships.* Redlands, California: ESRI Press, 1999**. e-book available in the APUS Online Library. Hard copy not available from the APUS Bookstore, please try other sources.**

Please visit http://apus.libguides.com/er.php and search by the course number (ex: LITR210) to access your required resources.

Our text is an E-book and directions for accessing it are located as an attachment to the Week 1 Forum. If you encounter difficulties viewing the e-book, please visit the HELP/FAQs section of the Online Library. If you still have questions, please contact librarian@apus.edu for assistance. **Please Note:** Stateside students will not be sent the hard copy version of this text. If you wish to purchase the text, you may do so through our recommended bookstore ED MAP or the bookseller of your choice.

Additional Resources

Bob Booth and Andy Mitchell. ***Getting Started with ArcGIS GIS by ESRI.*** n.d. http://web-facstaff.sas.upenn.edu/~dromano/classes/gis/files/Getting_Started_with_ArcGIS.pdf (accessed 18 August 2013).

Chairman of the Joint Chiefs of Staff. *Joint Publication 2-03 Geospatial Intelligence in Joint Operations.* Washington: JCS, 2012. Retrieved from: http://www.dtic.mil/doctrine/new_pubs/jp2_03.pdf . (accessed 15 August 2013).

Department of the Army. FM 5-33 (obsolete/out of print). July, 1990. http://www.bits.de/NRANEU/others/amd-us-archive/fm5-33(90).pdf (accessed September 18, 2013).

Heuer, Richards J., Jr. *The Psychology of Intelligence Analysis* (Washington, DC: Center for the Study of Intelligence, 1999), Retrieved from   HYPERLINK "https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/psychology-of-intelligence-analysis/PsychofIntelNew.pdf" https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/psychology-of-intelligence-analysis/PsychofIntelNew.pdf   (accessed 14 August 2013).

Moore, David T. *Critical Thinking and Intelligence Analysis.* Occasional Paper Number Fourteen. Washington, DC: National Defense Intelligence College, March 2007. Retrieved from http://ni-u.edu/ni_press/pdf/Critical_Thinking.pdf. (Accessed January 20, 2016).

National Park Service. "Key Terrain; Observation and Fields of Fire; Cover and Concealment; Obstacles; and Avenues of Approach and Retreat at the Battle of Buckland Mills 19th October 1863" n.d. http://www.fauquiercounty.gov/documents/committees/TranspComm/minutes/Battle_of_Buckland_KOCOA_Analysis.pdf (accessed September 18, 2013).

Wikipedia. "Participants in Operation Enduring Freedom." *Wikipedia.* n.d. http://en.wikipedia.org/wiki/Participants_in_Operation_Enduring_Freedom (accessed August 15, 2013).

Required Journal Articles and Internet sources will be provided in appropriate classroom simulation folders.

Websites

In addition to the required course texts the following public domain Websites are useful. Please abide by the university's academic honesty policy when using Internet sources as well. Note Web site addresses are subject to change.

Site Name Website URL/Address Websites

In addition to the required course texts the following public domain Websites are useful. Please abide by the university's academic honesty policy when using Internet sources as well. Note Web site addresses are subject to change.

Site Name	Website/URL Address
Lab Week 1: Cuba Maps	http://www.fiu.edu/~gebelein/Cuba_website/cuba_physical_geog/no_legend/research_resources.htm
Geospatial Intelligence Support to Joint Operations	http://www.dtic.mil/doctrine/new_pubs/jp2_03.pdf
Geospatial Intelligence Basic Doctrine - Publication 1-0	http://www.fas.org/irp/agency/nga/doctrine.pdf
Psychology of Intelligence Analysis	https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/psychology-of-intelligence-analysis/PsychofIntelNew.pdf

Getting Started with ArcGIS	http://web-facstaff.sas.upenn.edu/~dromano/classes/gis/files/Getting_Started_with_ArcGIS.pdf
Washington DC GIS Data Catalog	http://data.dc.gov/
ESRI Help 10.1	http://resources.arcgis.com/en/help/main/10.1/index.html#/Welcome_to_the_ArcGIS_Help_Library/00qn0000001p000000/
Spatial Environment Contributing to Battlefield Success	http://www.fauquiercounty.gov/documents/committees/TranspComm/minutes/Battle_of_Buckland_KOCOA_Analysis.pdf
FM 5-33	http://www.bits.de/NRANEU/others/amd-us-archive/fm5-33(90).pdf
Introduction to Terrain Analysis	http://www.mc.edu/rotc/files/8113/1471/9553/MSL_202_L03a_Intro_to_Terrain_Analysis.pdf

Evaluation Procedures

Each assignment will be evaluated by the instructor and comments may be given informally within the forum grading window or in more detail within the forum grader tool.

LATE ASSIGNMENTS: Late assignments and late forum posts will be accepted under certain circumstances. A student request for late submission must be initiated twenty-four (24) hours prior to the assignment deadline. Without prior permission by the instructor, late work will be assessed a five (5) percent penalty per day.

CITATION AND REFERENCE STYLE: All assignments for the School of Security and Global Studies (papers, essays, exams, and Forums) must follow the Turabian citation method. An online copy of may be found at:

http://www.press.uchicago.edu/books/turabian/turabian_citationguide.html. Students should be aware that in-text citations are the preferred method for citing sources (rather than in footnotes or endnotes). Any notes used in essays or assignments should be limited to extraneous information that the student wishes to include. The format for in-text citations is given in the Turabian guide linked above. Students are to use the parenthetical form (P) within the text of the document and the reference list form (R) in providing a list of sources. See more information on citation style in the Week 1 Lesson.

Forum discussions – One initial post by Thursday; two follow-up posts to classmates by Sunday. Specific questions found in Forums tab of the classroom simulation.

Initial Assignment – Short question and answer exercise. Specific instructions found in Assignments tab of the classroom simulation.

Midterm assignment – Short 8 question and answers exercise with mini-paper exercise. Specific instructions found in Assignments tab of the classroom simulation..

Final assignment – Short question and answer and map exercises. Specific instructions found in Assignments tab of the classroom simulation.

Grade Instruments	Percentage
Forum Discussions	25
Initial Assignment	25
Midterm Assignment	25
Final Assignment	25
Total	**100**

Please see the Student Handbook to reference the University's grading scale.

For all university policies, including grading system, extensions, and disability accommodations, please see the APUS Student Handbook.

Table of Contents

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8 – Week Course Outline

8 Week Course

Week	Topic(s)	Learning Objective(s)	Readings	Assignment(s)
1	Mental Maps/Analytic Bias The Toolwire GIS	Forum: CO-2 Lab: CO-1	**Mitchell:** Chapter 1 **Booth and Mitchell:** Chapter 2	Forum post and 2 replies Complete

	Lab Introducing GIS Analysis		**Heuer:** Scan all	Week 1 Lab Workbook
2	Planning a GIS Project	Forum: CO-3 Lab: CO-1	**Mitchell:** Chapter 2 **Booth and Mitchell:** Chapter 3 *JP2-03*: Scan Executive Summary and Chapter 1 **Heuer:** Read Chapters 2 and 3	Forum post and 2 replies Complete Week 2 Lab Workbook
3	Data Collection Mapping the Most and Least	Forum: CO-2 Lab: CO-5 Progress Assignment: CO-1, 4	**Mitchell:** Chapter 3 **JP2-03:** Scan Chapter III	Discussion post Complete Week 3 Lab Workbook Progress Assignment due at end of Week 3
4	Storage of Data Mapping densities	Forum: CO-3 Lab: CO-4	**Mitchell:** Chapter 4 **Booth and Mitchell**: Chapter 4: **JP2-03:** Read CHAPTER IV	Forum post and 2 replies Complete Week 4 Lab Workbook
5	Data Organization Mapping What is	Forum: CO-3 Lab: CO-5 Midterm	**Mitchell:** Chapter 5 **Booth and Mitchell:**	Forum post and 2 replies

	Inside an Area	Assignment: CO-1.2.3.5	Chapter 5	Complete Week 5 Lab Workbook

Midterm Assignment due at end of Week 5 |
| 6 | Data Organization

Mapping What is Nearby | Forum: CO-2
Lab: CO-6 | **Mitchell:** Chapter 6

Booth and Mitchell: Chapter 6 | Forum post and 2 replies

Complete Week 6 Lab Workbook |
| 7 | Terrain in Battlefield Analysis

Analysis of GIS Data | Forum: CO-3
Lab: CO-4 | **Booth and Mitchell**: Chapter 7

NPS "**Key Terrain; Observation and Fields of Fire; Cover and Concealment; Obstacles; and Avenues of Approach and Retreat at the Battle of Buckland Mills 19th October 1863"**: Read all

Rosen: Read all **"FM 5-33, Terrain Analysis."** scan all

Heuer: Reread Chapters 6 - 13 | Forum post and 2 replies

Complete Week 7 Lab Workbook |

8	Decision Making – Project Presentation Mapping Change	Forum: CO-3 Lab: CO-1 Final Assignment: CO-1, 3, 4, 6	**Mitchell:** Chapter 7 **Booth and Mitchell**: Chapter 8	Forum post and 2 replies Complete Week 8 Lab Workbook Final Assignment due at end of Week 8

Policies

Please see the Student Handbook to reference all University policies. Quick links to frequently asked question about policies are listed below.

> Drop/Withdrawal Policy
> Plagiarism Policy
> Extension Process and Policy
> Disability Accommodations

Citation and Reference Style
Attention Please: Students will follow the Turabian/Chicago Style as the sole citation and reference style used in written work submitted as part of coursework to the University.
See http://www.apus.edu/Online-Library/tutorials/chicago.htm.

Late Assignments
Students are expected to submit classroom simulation assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals, I understand you must manage competing demands on your time. Should you need additional time to complete an assignment, please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

Netiquette

Online universities promote the advancement of knowledge through positive and constructive debate – both inside and outside the classroom simulation. Forums on the Internet, however, can occasionally degenerate into needless insults and "flaming." Such activity and the loss of good manners are not acceptable in a university setting – basic academic rules of good behavior and proper "Netiquette" must persist. Remember that you are in a place for the rewards and excitement of learning which does not include descent to personal attacks or student attempts to stifle the Forum of others.

- **Technology Limitations:** While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The Sakai classroom simulation may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-coding or other visual effects will not translate in your e-mail messages.
- **Humor Note:** Despite the best of intentions, jokes and especially satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add "emoticons" to help alert your readers: ;-), :), ☺

Online Library

The Online Library is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Online Library provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to **librarian@apus.edu**.

- *Charles Town Library and Inter Library Loan:* The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- *Electronic Books:* You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- *Electronic Journals:* The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- *Tutor.com*: AMU and APU Civilian & Coast Guard students are eligible for 10 free hours of tutoring provided by APUS. Tutor.com connects you with a professional tutor online 24/7 to provide help with assignments, studying, test prep, resume writing, and more. Tutor.com is tutoring the way it was meant to be. You get expert tutoring whenever you

need help, and you work one-to-one with your tutor in your online classroom simulation on your specific problem until it is done.

Request a Library Guide for your course (http://apus.libguides.com/index.php)
The AMU/APU Library Guides provide access to collections of trusted sites on the Open Web and licensed resources on the Deep Web. The following are specially tailored for academic research at APUS:

- Program Portals contain topical and methodological resources to help launch general research in the degree program. To locate, search by department name, or navigate by school.
- Course Lib-Guides narrow the focus to relevant resources for the corresponding course. To locate, search by class code (e.g., SOCI111), or class name.

If a guide you need is not available yet, please email the APUS Library: librarian@apus.edu.

Turnitin.com

Faculty require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. The instructor will post information in the classroom simulation on student procedures.

Required Readings

See Course Outline.