Instructor:　　　　　　　Dr. Keith Rice

Office Hours:　Wednesday　　　　　　　　　10:00 – 10:50am
　　　　　　　　Tuesday & Thursday　　　　　11:00 – 11:50am
　　　　　　　　or by appointment

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This course is an in-depth examination of interactive, spatio-temporal, and cyber-cartographic techniques. A thorough examination of relevant computer software (and associated devices), as well as their applications to cartography will be explored. We will focus on the conceptual and developmental aspect of analytical cartography, animation, web presentation, and dynamic map design while learning pertinent multimedia, web and cartographic terms, concepts and syntax. Many commercial software packages and programming languages, including Surfer, CorelDRAW!, MapViewer, Google Map API, HTML5, Javascript, ArcGIS, ArcGIS Pro; and Adobe Illustrator, Animate & Dreamweaver, will be used to present students with diverse digital mapping situations. Although a seemingly inordinate amount of time will be spent in learning the syntax of many of the aforementioned software programs, you will also be presented with several computer-based cartographic production and design problems. Conceptual topics of interest will include: terrain mapping, three-dimensional visualization, web publication, dynamic & interactive map design, map animation techniques, cybercartography principles, and integration of sound with animated maps will be explored.

Lectures:　Lecture sessions will be on Monday and Wednesday mornings, and will concentrate on the basic theoretical and applied techniques of computer-generated maps and associated databases that will lay the foundation for the lab assignments.

Laboratory:　The lab session will meet every Monday afternoon. There will be eight different lab projects. The majority of assignments will take longer than the allocated lab period to complete. A few lab periods will be used to continue the previous weeks' project. Each mapping assignment will count between 6 - 7 percent of your final grade, for a total of 50 percent of your total course grade. These projects should be completed and handed in by the due date indicated by the instructor. Similarly, reading assignments should be completed before the class sessions for which they are assigned.

Examinations: There will be two examinations, a **midterm** on October 30th, covering the first eight weeks of the course and a comprehensive **final** exam (Thursday, *December 19th, 2:45 – 4:45pm)*. The midterm will be composed almost exclusively of multiple-choice and matching questions, focusing not only on basic concepts, principles, and definitions, but also on the applications of this knowledge to pertinent cartographic problems. It will count 20 percent of your final grade. The final examination will also be worth 20 percent of your course grade, and will be of similar structure to the midterm.

Texts:　　　　　**Thematic Cartography & GeoVisualization**, 3rd edition
　　　　　　　　by Terry A. Slocum, Robert B. McMaster, Fritz C. Kessler and Hugh H. Howard, Prentice-Hall, 2009 *[Text Rental Book]*

　　　　　　　　Mapping in the Cloud, Michael Peterson, New York: The Guilford Press, 2014 *[GIS Center Text Rental Book]*

Evaluation & Grading*:*

Maximum Points

Laboratories (eight total, 6 -7 points apiece)	50 points
Midterm Exam	20
Abstracts	10
Final Exam	20
	_____
Total	100 points

Ranges of percentage scores, exam points, course points, and their approximate equivalent letter grades are shown below. By referring to this table you can determine your letter-grade standing at any point in the course.

Percent	6 Pt Lab	7 Pt Lab	Abstracts	Course Pts.	Letter Grade
93-100	5.6	6.5	9.3	93	A
90	5.4	6.3	9.0	90	A-
87	5.2	6.1	8.7	87	B+
83	5.0	5.8	8.3	83	B
80	4.8	5.6	8.0	80	B-
77	4.6	5.4	7.7	77	C+
73	4.4	5.1	7.3	73	C
70	4.2	4.9	7.0	70	C-
67	4.0	4.7	6.7	67	D+
63	3.8	4.4	6.3	63	D
<63	<3.8	<4.4	<6.3	<63	F

Readings: A separate handout will detail the reading assignments for the semester from the textbooks and selected readings from various compendium texts. Each article from the text below will be identified by its book editor and page numbers.

Selected   Analytical and Computer Cartography, 2nd edition Keith C. **Clarke**, Prentice-Hall,
Readings   **1995**
 from:

Multimedia Cartography, editors: William **Cartwright**, Michael Peterson, Georg Gartner, Springer, New York, **1999**

Cybercartography: Theory and Practice, edited by D.R. Fraser **Taylor**, Elsevier, Amsterdam, **2005**.

Online Maps with APIs and WebServices, edited by Michael P. **Peterson**, Springer, New York, **2012**

Journal Abstracts: Each student is required to read at least <u>four</u> journal articles <u>or</u> <u>three</u> journal articles and <u>one</u> technical article, and compose a 1-page (minimum), single spaced, synopsis of each article or review. Criteria for each summary or abstract is outlined on an accompanying handout. Articles should be chosen from either <u>Cartography and Geographic Information Science,</u> <u>Cartographica</u>, <u>Cartographic Perspectives</u>, the <u>Cartographic Journal,</u> the <u>International Journal of Geographical Information Systems</u>, <u>Journal of Cartography</u>, and <u>GeoCarto International</u>. The abstracts are worth **10 percent** of your final grade and are due on <u>November 25th</u>.

Attendance: Although class attendance records will not be kept for grading purposes, it is strongly urged that class sessions not be missed. Remember that the success of class discussions is directly related to the amount of verbal participation, and with a small class one person can make a significant difference in aiding a classmate's understanding of a topic.

But in order to comply with federal financial aid Title IV legislation attendance will be taken several times during the course of the semester. UWSP Financial Aid Office is required by Federal law to retract financial aid for students that do not complete at least 60% of the semester for which they were awarded financial assistance. The mandated retraction formula uses the last date of attendance as a factor in determining the percentage of financial aid that must be returned to the U.S. Department of Education (DOE).

Printing Costs: During the course of the semester each student will be responsible to hand in several word documents and completed map assignments. All student printers are now handed through UWSP-IT so you will be charged for 5 cents for each B&W page (single side) as well as 15 cents for each color copy (single side). You start out with $10 in a UWSP printing account for the semester (for all of your classes) and then are charged a fee at the end of the semester for any printing exceeding that initial balance. You can always check your student printing account on your myPoint portal page on the Finances tab. Although it is *only an estimate*, you likely will print out 25 - 30 B&W pages and 5-10 color pages during the course of the semester for this class. Many lab assignments will be handed in a digital format (e.g. animation file).

Student Rights and Responsibilities: Please make note of the following web-based pdf documents, that explains your responsibilities and rights within the UWSP campus community, including required behavior by students and faculty within the classroom environment:
https://www.uwsp.edu/dos/Documents/UWSP14-Final2019.pdf
https://www.uwsp.edu/dos/Documents/2015_Aug_AcademicIntegrityBrochure.pdf
https://www.uwsp.edu/dos/Documents/CH17-UWSP-Updated2019.pdf

Accommodations for Students with Disabilities:
UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6th floor of Albertson Hall (library) as soon as possible. DATC can be reached at 715-346-3365 or DATC@uwsp.edu.

** <u>Schedule of Lecture Topics, and Laboratory Assignments</u> **

	<u>Lecture Topic</u>	<u>Laboratory</u>
September		
4	Course Overview & Introductory Comments Portraying and Mapping Continuous Surfaces	-----
9 & 11	Isarithmic and Surface Mapping - Terrain Mapping Automatic Contouring Terrain Analysis & Surface Modeling	Lab 1 (6) *Contour Mapping*
16 & 18	Principles of Three-Dimensional Mapping Map Visualization Building Three-Dimensional Terrain Models	Lab 2 (6) *3-D Mapping*
23 & 25	Composite Map Displays Compilation & Multiple Map Comparisons Stepped Statistical Surfaces – Prism Maps	Lab 3 (7) *Composite Compilation*
October		
(Sept 30) & 2	Introduction to Dynamic/Interactive Mapping Foundational Map Animation techniques Map Visualization: Static versus Dynamic Map Presentation Stage and Frame-Based Animation Techniques	Lab 4 (6) *Map Animation Techniques*
7 & 9	Online Multimedia – Graphic, Audio, Video File Standards Maps and the Internet - Categories & Galleries HTML Web Publishing & Page Editing Basic Web Programming with Javascript	Lab 5 (7) *Web Mapping*
14 & 16	Exploring the Concept of the Dynamic Map Defining Animation Interactivity Animation Map History	*[open lab]*
21 & 23	Internet Map Design & the Cartographic Interface Map Mashups – Enhancing the Cartographic Database Symbolization within a Mashup – Point, Line, Area XML, SQL, KML, and the Digital Map Interface	Lab 6 (6) *Map Mashups &* *Cartographic API's*
28	Google Map API's, Investigating Geo-Tagging Online Mapping and Social Media Data Sourcing Midterm Review Session	*[open lab]*
30	**Midterm Exam**	

<u>November</u>

4 & 6	Multimedia Display Fundamentals Temporal Change Animation Techniques Designing the Animation Graphic Interface	Lab 7 (6) *Temporal Change* *Animation*
11 & 13	Three-Dimensional Terrain Model Animation 2.5/3D Visualization Strategies Complex Map Motion – Fly-Over Animation Issues	*[open lab]*
18 & 20	Scripting and Modeling w/Cartographic Animation Dynamic Mapping – Adding Video & Music	Lab 8 (6) *Fly-Over Map Design*
25	Augmentation of Map Displays with Sound Clips Maps in Movies! Listening to Maps – Music Integration & Enhancement	------

[Thanksgiving Vacation, November 27 – 30] - no class on Wednesday

<u>December</u>

2 & 4	Interactive Map Enhancements Mobile mapping and Geo-Spatial Sensor Networks Community Visualization & Social Mapping Augmentations	------
9 & 11	Review for the Final Exam Evaluation & Course Summary	

Final Exam: Thursday, December 19th, 2:45 – 4:45pm

Comments:

(1) The worth of each laboratory (in points) is denoted within the parentheses next to each lab title.

(2) This schedule is tentative and is subject to changes during the course of the semester.

(3) Open lab periods define a continuation of the previous week's lab assignment.