

**SYLLABUS**  
**GEOGRAPHY 804 –ADVANCED REMOTE SENSING (3 credits)**  
**Spring 2019 (preliminary version)**

Time: Wednesdays, 5:00-7:40 p.m. Class reflector: geog-703@uwm.edu  
Instructor: Prof. Mark D. Schwartz Room: BOL 289  
Office: BOL 490 -- messages may be left in BOL 410 (Geog. Dept.)  
Office Phone: 229-3740 Messages: 229-4866 (Geog. Dept.)  
Office Hours: by appointment only

Textbook: Jensen, J. R., *Introductory Digital Image Processing*, 4<sup>th</sup> Ed. (2015), Prentice Hall.  
Readings: Additional readings may be assigned on topical issues.  
Materials: USB portable drives for file transport and storage

This course is designed to follow on from basic concepts of digital image analysis addressed in Geog 403/704 *Remote Sensing: Environmental and Land Use Analysis* or similar courses. Students will develop competency in using ERDAS IMAGINE software. Topics will include data import and geo-linking, image enhancement and georegistration, unsupervised classification, resolution merging, supervised classification, hybrid classification, classification of mixed pixels, spatial modeling, and vector integration. Understanding of these technical issues and procedures will be interleaved with practical examples of their application to geographic problems, which students will explore through exercises and a final project. Students will choose a topic of interest, formulate and present an outline of their strategy and methodology, and then prepare a written final report of the project, including an in-class graphically-supported presentation.

**COURSE POLICIES**

1. Evaluation: Grades will be assigned on the basis of total points accumulated from general participation and exercises (100 points), the final report (40 points) and presentation (20 points), and a “take-home” final exam (40 points) for a total of 200 points.

The percentages necessary to receive certain grades will be no higher than the following:

88%--(A-)

78%--(B-)

2. Notices: Grades, once given are final except in cases of clerical error. Do not use a red pencil or pen to write exam answers. All tests must be taken as scheduled; make-ups are given in case of documented student illness or other emergency only. It is the responsibility of the student to notify the instructor when an exam or other course requirement will be missed. If you need special accommodations to meet any of the requirements of this course, please contact me as soon as possible. Do your own work...plagiarism and cheating are unacceptable and will not be tolerated. Additional information regarding the policies and procedures applicable to this course are available on-line (<http://www4.uwm.edu/secu/SyllabusLinks.pdf>) and posted in the Geography Dept. office, BOL 410. In the event of disruption of normal classroom activities, the format for this course may be modified to enable completion of the course. No weapons are permitted in any building on the UWM campus.

3. Average student's investment of time to achieve learning goals of the course (155 hours).

This total is made up of the following:

General preparation and study: 70 hours

Lectures and Exam: 40 hours

Assignments: 45 hours

**TENTATIVE SCHEDULE**

**READINGS**

(J = Jensen Chapter)

Jan.	23-W-Introduction, procedures, and facilities/IMAGINE Orientation1	J1&2
	30-W-IMAGINE Orientation 2	J3&4
Feb.	6-W-IMAGINE Orientation 3	J7&8
	13-W-IMAGINE Orientation 4	J5&6
	20-W-IMAGINE Orientation 5	J9
	27-W-Georegistration/Image Enhancement	J10&11
Mar.	6-W-Classification 1	J12&13
	13-W-Spatial modeling	
	20-W-NO CLASS, SPRING BREAK	
	27-W-Classification 2	Handout
Apr.	3-W-Guest Lecture TBD	
	10-W-High-resolution, land surface, and landscape phenology	
	17-W-Outline presentations	
	24-W-Outline presentations	
May	1-W-Report presentations	
	8-W-Report presentations, Take-home exam distributed	
	10-F-Final Report due by 4:30 p.m.	
	15-W-Take-home exam due by 7:40 p.m.	