Course Information
Meeting location and times
Lecture: 3:00pm - 3:50pm Mon, Wed  1158 LeFrak Hall
Lab (0101): 11:00am-1:00pm Fri  1138 LeFrak Hall
Lab (0102): 1:00pm – 3:00pm Fri  1138 LeFrak Hall

Instructor: Dr. Kathleen Stewart, Department of Geographical Sciences
Office location: 1125 LeFrak Hall,
Office hours: 10:30am – 12:00pm Tuesday, or by appointment
Email address: stewartk@umd.edu

Teaching assistant: Honglin Zhong
Office hours: 2:00pm-5:00pm Thursday
Email address: hzhong1@umd.edu

Course website: ELMS. All students enrolled in the course have access to course materials (lecture slides, assignments etc.,) through the ELMS website.

Course materials:
Recommended textbook:
Terry Slocum, Robert McMaster, Fritz Kessler, and Hugh Howard, Thematic Cartography and Geographic Visualization, Hardback


Additional readings will be handed out as necessary.

Prerequisites: GEOG373 and GEOG306

Method for Communication with Students Outside the Classroom:
Regarding class cancellation, room change, or other timely announcements, the instructor will use ELMS to post these announcements. ELMS will also be used to post grades.

Course description, goals, and expectations
Course description*
This course introduces the basic concepts and techniques that underlie digital map making and the broader field of geographic visualization. Topics include the fundamentals of making maps digitally, for example, map symbolization, scale, and generalization, and also the contribution to geographic visualization from the fields of scientific visualization, information visualization, and cognition. This includes topics such as GIS and virtual environments, and designing user
interfaces for GIS. The course also offers an opportunity to learn about dynamic map design by constructing map animations using Google Earth. Laboratory exercises use GIS software and are designed to familiarize students with visualization techniques in practical applications.

- Please note that the course description on Testudo is out of date and the topics listed here represent topics that we will actually discuss in class.

Goals and learning outcomes
- Students are introduced to fundamentals of modern digital cartography and geovisualization, i.e., the basics for representing knowledge on maps in geographic information systems
- Gain familiarity with map symbolization, color theory, and scale
- Understand the contribution to geographic visualization from the fields of cognition, scientific visualization, and information visualization
- Gain an introduction to dynamic mapping and mapping on the web
- Be able to apply cartographic techniques using spatial data

TENTATIVE lecture schedule and class assignment schedule*

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<tr>
<th>Data</th>
<th>Topic</th>
<th>Readings</th>
<th>Lab Assignments</th>
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<tr>
<td>08/28</td>
<td>Course intro, history of cartography Get map data</td>
<td>Chap 1</td>
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<tr>
<td>09/04</td>
<td>Labor Day – no class 09/04 Data Classification, Human visual systems</td>
<td>Chap 5</td>
<td>Lab 1 Getting map data</td>
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<td>09/11</td>
<td>Color theory, perception Visualization principals</td>
<td>Chap 10</td>
<td>Lab 2 Data classification CAGIS paper</td>
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<td>09/18</td>
<td>Map symbolization Map typography</td>
<td>Chap 5</td>
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<td>09/25</td>
<td>Choropleth mapping Color ramps, Proportional symbol</td>
<td>Chap 4, 5, 14, 16, 17</td>
<td>Lab 3 Mapping with color</td>
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<td>10/02</td>
<td>Dot maps, Map scale, Types of maps, Generalization</td>
<td>Chap 5, 6</td>
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<td>10/09</td>
<td>Generalization, VGI Review</td>
<td>Chap 6, 10</td>
<td>Lab 4 ArcGIS Layouts</td>
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<td>10/16</td>
<td>VGI, visual variables for animation Map Animation,</td>
<td>Chap 21</td>
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<td>10/23</td>
<td>Dynamic maps, flyovers Midterm examination</td>
<td>Chap 21</td>
<td>Lab 5 Map animation</td>
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<td>10/30</td>
<td>Discuss good vs. bad maps Color and symbolization</td>
<td>Chap 22, Handouts</td>
<td>Lab 6 Good/Bad maps</td>
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<td>11/06</td>
<td>Data exploration, Information and scientific visualization</td>
<td>Chap 24</td>
<td>Lab 7 KML Animation</td>
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<td>11/13</td>
<td>Web mapping Animated maps</td>
<td>Chap 24</td>
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<td>11/20</td>
<td>3D interfaces, speech, virtual environments Thanksgiving – no class (11/22)</td>
<td>Chap 26</td>
<td>Lab 8 Using Leaflet</td>
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<td>11/27</td>
<td>Future trends Review</td>
<td>Chap 25</td>
<td>Leap Motion</td>
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<td>12/04</td>
<td>Presentation of projects</td>
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<td>12/11</td>
<td>Last day of classes - Review</td>
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<td>12/13-19</td>
<td>Finals Week - Final examination - TBA</td>
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<td>Final exam</td>
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* Please note that this tentative schedule could be subject to change as the semester progresses. Updates will be announced in class and on ELMS.

**Grading procedures and the use of +/-**
Plus/minus grades will be given. The general guidelines for letter grades will be as follows: 97 ≤“A+” ≤ 100, 93 ≤“A” < 97, 90 ≤“A-” < 93, 87 ≤“B+” < 90, 83 ≤“B” < 87, 80 ≤“B-” < 83, 77 ≤“C+” < 80, 73 ≤“C” < 77, 70 ≤“C-” < 73, 67 ≤“D+” < 70, 63 ≤“D” < 67, 60 ≤“D-” < 63, 60 ≤“F”. Minor adjustments may be introduced to the general scheme to allow for students’ grade distribution.

*A+ grades are given only in extraordinary situations*
Assignments and percentage of final grade
Laboratory Exercises 40%
Individual Project & class participation 15%

Grades will be based on a judgment of overall performance. Lab exercises, a midterm, a final exam, and an individual project will contribute to your grade. Lab exercises will be assigned to complement the lectures and familiarize you with database and information system design. The labs will be graded on content, completeness, grammar, tidiness, and promptness (i.e., should be handed in on due date).

NB. Graduate students may be required to complete additional or different tasks on lab assignments and exams, or to complete additional assignments (e.g., a paper).

A Note on Collaboration While you may choose to interact with other students while working on your assignments and project, all submitted work is expected to be your own, i.e., all writeups and discussion statements etc., should be your own individual thoughts, and maps and cartography should be unique to you (unless the assignment is presented as a group task). Your project will also be independent and unique to yourself.

Exams and percentage of final grade:
Midterm exam 20%
Final exam 25% (not cumulative)

A Word about the Date and Time of the Final Exam: The final examination date and time is expected to be announced by the Registrar generally by the tenth day of classes. I will announce the final examination date and time for this course on the course ELMS/Canvas site once it is known. Do not plan your end of the semester travel plans until the final exam schedule is made public. It is your responsibility to know the date, time, and place of the final exam.

Course procedures and policies
Course attendance and participation in class discussions:
Regular attendance and participation in this class is the best way to grasp the concepts and principles being discussed. However, in the event that a class must be missed due to an illness, the policy in this class is as follows:
1. For every medically necessary absence from class (lecture or lab), a reasonable effort should be made to notify me by email in advance of the class. When returning to class, please provide a note identifying the date of and reason for the absence, and acknowledging that the information in the note is accurate.
2. If you are absent more than one time, you are required to bring documentation signed by a health care professional.
3. If you are absent on days when tests or exams are scheduled or course material is due [for other such events as specified in the syllabus] due to illness, please notify me in advance by email, and upon returning to class, bring documentation of the illness, signed by a health care professional.
4. If you will be absent due to religious observances, you are responsible for notifying me during the first week of the semester.

Turning in assignments late due to illness accompanied by a signed note or religious observances, will not result in the deduction of points.

Timely completion of assignments: All lab exercises are expected on their due date. Late work
receives a penalty of 10%. No exercises will be accepted for grading once a graded assignment has been handed back.

**Lectures:** You are expected to attend and be actively engaged in each lecture. Laptops and tablets are permitted for **note-taking purposes only**. Students should be aware that most of the material covered in the class is not necessarily available in a textbook, and will be presented in lectures only. Students are strongly encouraged to take careful notes during the lectures.

**Students with disabilities:** I will make every effort to accommodate students who are registered with the Disability Support Services Office and who provide me with a University of Maryland DSS Accommodation form that has been updated for the Fall 2016 semester. Please present this form to me as soon as possible. My office is in LeFrak Hall on the first floor.

**Academic integrity**
The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student, you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://www.shc.umd.edu.

**Copyright information:** Course materials that exist in a tangible medium, such as written or recorded lectures, Powerpoint presentations, handouts and tests, are copyright protected. Students may not copy and distribute such materials except for personal use without my written permission.