

Geography of the James River Watershed

GEOG 215 Fall 2013



Instructor:

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Office hours: Mon 2:00-3:00; Thurs 11:00-noon

The websites for the class can be found on Blackboard (<http://blackboard.richmond.edu/>). All assignments, administrative information, readings, and class lecture notes are available there. The course blog site can be found at <http://blog.richmond.edu/james/>. The site houses your class blog postings and provides an opportunity for non-stop shopping all things James River related.

Course Schedule:

Class meets MW 9:00-10:15. Monday classes will meet in 230 INTC. On Wednesdays we will meet in Atlantic House. To be successful in this course, you should expect to devote a significant amount time outside the classroom to complete the community based learning component of the course. Tasks will not be distributed evenly throughout the semester (for example, our exploration of the Potomac River watershed will consume much of Fall Break), but an average of 10-14 hours per week should be dedicated to preparing for class, participating in class sessions, completing course assignments, and engaging in community activities and class trips.

Important Trip Dates:

Fri Sept 6 or Sat Sept 7, 2:30-6:00: Kayak trip from Huguenot Flatwater
Sat Sept 21, 12:30-3:30: Belle Isle downtown tour
Wed Sept 25, 8:30-10:15: Pony Pasture field trip
Fri Oct 11 - Mon Oct 14: Potomac River watershed comparative study

Course Description and Objectives:

The course has three primary objectives: (1) to exercise and hone skills of critical observation of our environment, (2) to provide an introduction to environmental geography emphasizing concepts of scale, connectivity and boundaries as they apply to the James River watershed, and (3) to link the socio-ecological theory learned in class to the practice of natural resource management in the local community.

These goals are accomplished through a combination of scholarly discussion in the classroom and first-hand exposure to the people and environments that define the resource challenges and opportunities within the James River watershed. In this broad survey course you will become familiar with basic concepts in cartography, ecology, hydrology, historical geography, geology, biogeography, environmental leadership, and spatial analysis. You will also gain an increased understanding of the geographic concepts of place and region through our intensive focus on the watershed surrounding you. During the fall break trip, we will practice our skill at comparative analysis by exploring the Potomac River watershed.

Throughout the semester, we will meet and work with local natural resource practitioners to discuss and assist with projects related to their work in the watershed. The semester will culminate with a final project that ties together the lecture and field-based components of the course. This year the final project will related to the theme of connectivity. Although Richmond is internationally recognized for its river resources, public interactions with these resources is limited by the lack of clear information on river access in the city and surrounding counties. We will work closely with government, nonprofit, and private groups and individuals to gather data on all public access points and their connectivity to key locations such as the university and select city neighborhoods. This field work will be integrated within a geographic information system in collaboration with the Introduction to GIS class (GEOG 260) to create a mobile app for distribution.

Course Materials:

There is no required textbook for the course, but reading assignments are required in advance of each class. These readings will be accessible through Blackboard. Each student will sign-up to be the expert for one chapter of the book *In River Time*. We will work our way through the book sequentially. Discussion leaders will post a 1-page summary of their chapter to the Blackboard Groups page and start each Wednesday class with a 5-minute summary and a 10-minute interactive activity. Presentations will be evaluated as part of the Class Participation grade based on organization, topic knowledge, creativity, and enthusiasm/style. Lecture materials and readings will be available on Blackboard. Extra class material, including tree identification books, will be stored in the Earth Lodge. Please be respectful of classmates by diligently signing out these materials when borrowing them.

Student Evaluation:

52 pts Quizzes and Exam

Short in-class quizzes may be given at any time during the semester (5 pts). These quizzes will cover concepts from the previous week's lecture and/or the current week's assigned readings. Students missing a quiz for a reason not approved ahead of time will

score zero for that quiz. A mid-term exam will consist of multiple choice and short answer questions focusing on the material from lecture and the readings (20 pts). A dendrology exam will require the correct identification of twenty-five campus trees (7 pts). The final exam will be cumulative and essay based (20 pts).

8 pts Community Based Service Learning

Community Based Learning (CBL) will be an integral part of this course. A total of 8 hours of volunteer service are required. These hours are meant to provide additional exposure to the people and places within the watershed. The activities will be written about in your blogs and discussed in class. Opportunities will be posted on the class blog site. Plan ahead. Any requests to count an activity other than the ones posted on the blog site must be made by the end of the second week of classes. Four hours must be completed by Sunday, October 20. The remaining four hours must be completed by Sunday, November 3. Email me a 1 to 2 sentence description of your activities with honor code statement by these deadlines. No exceptions to the deadlines will be made.

8 pts Observation Logs

Observation logs will be maintained on the web (<http://blog.richmond.edu/James/>). Eight original posts (0.5 pt each) are required during the semester (see attached for list of topics). Postings should link observations from time spent in the James River watershed to topics discussed in class. The concepts of scale, connectivity, boundaries, place, and region should be emphasized. Two longer reflective pieces (1 pt for the first and 3 pts for the second) will be submitted that require linking prior postings in a cohesive essay. Observation Log entries are due on Monday night at 10:00 pm of the week in which they are assigned. Not posting an entry on time will result in a zero for that week's assignment.

25 pts Final Project

The final project this semester will focus on the mapping of James River accessibility within the city of Richmond and surrounding counties. Four groups of three people each will be assigned separate regions. Your responsibility will be to document all public access points within the region through a combination of community outreach and field mapping. Each group will be teamed with another group of three students from the Introduction to GIS class that will collate the data into map documents that can be served out to the greater Richmond community. Groups will be assigned in the first month of class. Final projects will be evaluated based on an interim 5-page report (5 pts), a 10-page final report which will include final map products (10 pts), engaged participation (5 pts) and a 15-minute oral presentation of accomplishments (5 pts).

7 pts Class Participation

Class participation will be evaluated primarily on the In River Time assignment (2 pts) and active, engaged participation in the classroom and field trips (5 pts). Participation will be quantified using the following guidelines (adapted from JA Schatzel, Stonehill College):

| <u>Points</u> | <u>Expectations</u> |
|---------------|--|
| 5 | Always well prepared for class including completion of all assigned readings; consistently facilitates productive peer discussions; offers reasoned responses of high quality; raises substantive questions about the readings and assignments on an ongoing basis; and engages thoughtfully with invited guest speakers and field trip hosts. |
| 4 | Contributes regularly; generally prepared; asks questions and provides occasional responses of moderate quality; handles direct questions satisfactorily. |
| 3 | Allows others to carry the ball; participates infrequently; needs to be prodded; weak preparation; wastes class time with questions of little substance. |
| 2 | Often inadequately prepared; little involvement in class discussions; repeatedly late or leaves during class. |
| 0-1 | Unprepared; disruptive in class; unauthorized use of computers during class – e.g. e-mail or instant messaging; repeated talking with other students about topics not related to class. |

One absence is permitted per semester. Three percentage points will be deducted for each additional absence. This includes absences from scheduled field trips.

GRADING: Grades will be assigned based on the following formula:

| | <u>Point values</u> |
|---------------------|---------------------|
| Exams and Quizzes | 52 |
| CB service learning | 8 |
| Observation logs | 8 |
| Final project | 25 |
| Class participation | <u>7</u> |
| | 100 |

- The grading scheme will follow standard University of Richmond guidelines (<http://registrar.richmond.edu/services/policies/grading.html>).

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| A > 93 pts | B 87-83 | C 77-73 | D 67-63 |
| A- 93-90 | B- 83-80 | C- 73-70 | D- 63-60 |
| B+ 90-87 | C+ 80-77 | D+ 70-67 | F < 60 pts |

ACADEMIC HONESTY: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor.

Fall 2013 Schedule

This schedule will be followed approximately. Some changes may be made as the class proceeds but the exam date, assignment due dates, and field trip dates will not change. Additional information on the observation logs and final project is provided in supplemental handouts. All assignment should be completed before class on the week that they are assigned.

| Date | Topic | Assignments |
|---|---|---|
| INTRODUCTORY MATERIAL – The James River Watershed | | |
| Aug 26 | <i>What defines a place? What is a watershed? What defines the James River watershed?</i> Upper Lake Walking Tour | <i>Readings:</i> A River Runs Through Us Journey on the James In River Time by Ann Woodliff (Chapters 1-3) |
| Sept 2 | <i>History of the James River and its relationship to patterns of human settlement.</i> Lower Lake Walking Tour | <i>Readings:</i> Nonesuch Place (Chapter 1) Lost Towns of Virginia (pp 40-45) The River Where America Began (Chapter 1) <i>Lecture readings should be completed before class on Mondays and reviewed with lecture notes before class on Wednesdays. In River Time readings should be completed by class on Wednesdays.</i> <i>Blog Entry 1:</i> Observations of Westhampton Lake watershed (due Monday, Sept 2, 10:00 pm) |
| <i>Friday Sept 6 or Saturday Sept 7, 2:30-6:00: Kayak trip on James</i> | | |
| BOUNDARIES –Campus, Riparian, and Protected Areas | | |
| Sept 9 | <i>Watershed boundaries reviewed. What does it mean to be an urban campus within an urban watershed? What are the boundaries of wilderness?</i> | <i>Readings:</i> Urban Myths The Trouble with Wilderness; or, Getting Back to the Wrong Nature Watershed Pollution and Preservation: The Awareness–Appraisal Model <i>Blog Entry 2:</i> 1st entry from reflection spot. Add a comment to your initial impressions of the Westhampton Lake watershed (Blog 1). Also comment on one of your classmates Blog 1 entries. |
| <i>(optional) Sept 14: James River Regional Cleanup</i> | | |
| Sept 16 | <i>What's a riparian area? What roles do they play in the urban environment?</i> | <i>Readings:</i> Belle Isle Guidebook Down by the riverside: urban riparian ecology Conservation Buffers Design Guidelines |

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| | <p><i>How are they influenced by urbanization?</i></p> <p><i>Sept 18, 7 pm Ikal Angelei Brown-Alley Room</i></p> <p><i>"Partnering with Communities for Sustainable Economic Justice: An East African Case Study"</i></p> | <p><i>Blog 3: Review of Maymont Nature Center watershed exhibit</i></p> |
| <p><i>Sept 21: Field Trip Downtown to Flood Wall and Belle Isle (optional) Sept 22: James River Association Splash & Dash (Registration closes Sept 18 at noon)</i></p> | | |
| Sept 23 | <p><i>How porous are protected area boundaries? What's the importance of the local neighborhood to water conditions in protected areas? What's the importance of protected areas to water conditions in surrounding neighborhood?</i></p> | <p><i>Readings: Pony Pasture Rapids/Wetland Wonders Interpretive Guidebooks</i></p> <p><i>Threats to U.S. public lands from hydrologic alterations outside of their boundaries</i></p> <p><i>Blog 4: James River Park System reflection having been to Belle Isle and Pony Pasture</i></p> |
| <p><i>Sept 25, 8:30-10:00: Field Trip to Pony Pasture</i></p> | | |
| <p>CONNECTIVITY – Hydrologic, Biotic, and Human-Environment</p> | | |
| Sept 30 | <p><i>Catchment hydrology. How does water flow through a watershed? How has the connectivity of hydrologic flow been altered through time? by urbanization?</i></p> <p><i>Sept 30, 5 pm Vikram Rao "Diversion of water for fracking"</i></p> | <p><i>Readings: The urban stream syndrome</i></p> <p><i>Fracking vs Faucets: Balancing energy needs and water sustainability at urban frontiers</i></p> <p><i>Elements of Physical Hydrology (Chapter 1)</i></p> <p><i>First blog synthesis assignment (~1000 words)</i></p> |
| Oct 7 | <p><i>What role do wetlands and floodplains play in connecting the river to its watershed?</i></p> <p><i>Exam review</i></p> | <p><i>Readings: Biodiversity of floodplain river ecosystems: ecotones and connectivity</i></p> <p><i>In-class mid-term on Wed, Oct 9</i></p> |
| <p><i>Oct 11 - Oct 14: Potomac River watershed comparative study</i></p> <p><i>Readings: The Potomac by Frederick Gutheim</i></p> | | |

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| Oct 14 | <i>Field trip debriefing. What did we learn about the Potomac River watershed? How does it resemble and how does it differ from the James?</i> | <p><i>Readings:</i> Altered ecological flows blur boundaries in urbanizing watersheds</p> <p><i>Blog 5:</i> Potomac River watershed comparison (special due date on Tues rather than Mon night)</p> |
| Oct 20: Deadline for first four hours of service learning | | |
| Oct 21 | <i>Biological connectivity. How effective are eco-corridors? How have humans disrupted the connectivity of the river for shad, sturgeon and other anadromous fish?</i> | <p><i>Readings:</i> Riparian corridors enhance movement of a forest specialist bird in fragmented tropical forest Fish ladders: safe fish passage or hotspot for predation?</p> <p><i>Blog 6:</i> Second entry from reflection spot <i>Tree identification exam on Wed Oct 23</i></p> |
| Oct 28 | <i>Regional trail networks. What is green infrastructure? How can a river both connect and divide a city/community? Project group work</i> | <p><i>Readings:</i> Richmond Green Infrastructure Assessment James River Heritage Trail Conceptual Plan</p> |
| SCALE – Local to Global | | |
| Nov 3: Deadline for second four hours of service learning | | |
| Nov 4 | <i>Case studies of environmental champions: Ralph White and Ikal Angelei. What does it take to mobilize a local community? Guest: Ralph White</i> | <p><i>Readings:</i> Environmental Leadership <i>Students must additionally find 1 article online about Ralph White and 1 article on Nathan Burrell</i></p> <p><i>Blog 7:</i> Community based service entry</p> |
| Nov 7: Interim 5-page project paper due | | |
| Nov 11 | <i>What can be done on the campus landscape to improve water quality of the James River / Chesapeake Bay? Can these actions have additional social benefits? Gambles Mill Corridor. TMDLs.</i> | <p><i>Readings:</i> A blueprint for environmental sustainability along the James River James River Journal The James River GIS-based stormwater calculator</p> <p><i>Blog 8:</i> Third entry from reflection spot</p> |

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| | <i>Guest visitor: Jeff Allenby</i> | |
| Nov 18 | <i>Investigating global water issues</i> <i>Project group work</i> <i>Wed: James River vs Potomac River debate</i> | <i>Readings: Water in a changing world</i> James River Report Card Potomac River Report Card |
| Nov 25 | <i>Thanksgiving week</i> <i>Project group work</i> | <i>Final blog synthesis assignment (~1000 words)</i> |
| Dec 2 | <i>Final Project Presentations</i> <i>Course wrap-up and review</i> | |
| <i>Dec 6, 8:00 pm: Final Project Papers Due by Email</i> | | |
| <i>Dec 10, 9:00 am: Final Exam</i> | | |

If you experience difficulties in this course, do not hesitate to consult with me. There are also other resources that can support you in your efforts to meet course requirements.

Academic Skills Center (<http://asc.richmond.edu> or 289-8626) helps students assess their academic strengths and weaknesses; hone their academic skills through teaching effective test preparation, critical reading and thinking, information processing, concentration, and related techniques; work on specific subject areas (e.g., calculus, chemistry, accounting, etc.); and encourage campus and community involvement.

Career Development Center (<http://cdc.richmond.edu/> or 289-8547) can assist you in exploring your interests and abilities, choosing a major, connecting with internships and learning experiences, investigating graduate and professional school options, and landing your first job. We encourage you to schedule an appointment with a career advisor during your first year.

Counseling and Psychological Services (<http://caps.richmond.edu> or 289-8119) assists students in meeting academic, personal, or emotional challenges. Services include assessment, short-term counseling and psychotherapy, crisis intervention and related services.

Speech Center (<http://speech.richmond.edu> or 289-6409): Assists with preparation and practice in the pursuit of excellence in public expression. Recording, playback, coaching and critique sessions offered by teams of student consultants trained to assist in developing ideas, arranging key points for more effective organization, improving style and delivery, and handling multimedia aids for individual and group presentations.

Writing Center assists writers at all levels of experience, across all majors. Students can schedule appointments with trained writing consultants who offer friendly critiques of written work: <http://writing.richmond.edu>

Boatwright Library Research Librarians assist students with identifying and locating the best resources for class assignments, research papers and other course projects. Librarians also assist students with questions about citing sources correctly. Students can schedule a personal research appointment, meet with librarians at the library's main service desk, email, text or IM. Link to <http://library.richmond.edu/help/ask.html> or call 289-8669.

Note: Students having special needs that require an accommodation or an academic adjustment, please arrange a meeting with me within the first two weeks of the semester.