

Geovisualization

GEOG 16361/16661 | Section 1 | Fall 2019
Thursdays, 5:00 – 7:45 pm | Robinson 311
Geography, Planning, and Sustainability
Rowan University

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Office hours: Thursdays 2:00-3:00pm & 7:45-8:45pm

Geovisualization:

"... the use of concrete visual representations – whether on paper or through computer displays or other media – to make spatial contexts and problems visible, so as to engage the most powerful human information-processing abilities, those associated with vision." (MacEacheren et al., 1992)



Source: <https://smartgisolutions.co.nz>

Introduction

This course explores geographic visualization (Geovisualization) and related cartographic or graphic design techniques. The course content is primarily focused on GIS-based spatial planning, analysis, and visualization techniques, and is relevant to geographers, urban/regional planners, environmental engineers, and related professionals. Coursework is based on 2D and 3D data analysis, modeling, and visualization, fly-thru simulations, and presentations, using software such as ArcGIS, ArcGIS Online, and ArcGIS extensions (e.g, Spatial Analyst and 3D Analyst). Students study the methodology of using Geovisualization tools and techniques in research studies or professional projects. They learn to present spatial data, analysis, and design through maps, apps, posters, reports, slides, and websites. The concepts of qualitative Geovisualization and other emerging tools and techniques are also introduced.

Objectives

Upon successful completion of this course, students will be able to

- Understand quantitative and qualitative Geovisualization techniques for analyzing, visualizing, and communicating spatial data;
- Present analyses of 2D and 3D urban environments in hard-copy/digital/online formats, in order to communicate with professionals, scholars, and the public;
- Understand basic principles and elements of visualization techniques related to geospatial planning;
- Find and apply innovative Geovisualization techniques for their own research; and
- Build technical and graphical communication skills for future employment/job success, and develop a graphical communication portfolio.

Prerequisite

GEOG16160: Introduction to Mapping and Geographic Information Science or equivalent
Prior knowledge of GIS mapping/ familiarity with ArcGIS software is required for this course.

Textbook and Other Resources

- There is no required text book for this course. All required readings, tutorials, and references will be provided in digital format via Blackboard.
- All software programs for this course are installed on computers in the Geography, Planning, & Sustainability (GPS) Department, including Robinson 306, 311, and the student work lab inside the GPS department + labs in Engineering College. Open lab hours in 311 (classroom) can be available from the GPS department office. In addition, you can get access to the required software inside or outside of campus using Citrix (please check irt.rowan.edu).
- Some GIS data will be made available through a network drive.
- You will be required to complete selected online courses from ESRI (<https://www.esri.com/training>). Detailed instructions will be provided in class.

Blackboard

You are required to use Blackboard (<http://rowan.blackboard.com>) for submitting assignments and accessing resources and announcements, including possible syllabus or calendar changes.

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Course Requirements

- Class performance: This includes attendance, class participation, team playing, and responsibilities/attitude. Each week you may receive up to 2 points for attendance and meaningful participation. Please check out our attendance and participation policy on the next page.
- Methodology reports: Throughout the semester, you will submit six brief reports based on your understanding of the methodology used in research studies or professional projects. The readings will be assigned on Blackboard one week prior to the submission. Please follow deadlines mentioned in the course syllabus.
- Assignments: You will submit three assignments on 2D visualization, online map and app (e.g., story map), and 3D visualization. Instructions will be provided in class and on Blackboard.
- Quiz: There will be two online quizzes—one before midterm project and the other before final project. The quizzes will be based on readings, class lectures, labs, and other resources.
- Midterm project: Midterm project will run for several weeks. Submission requirements will include maps, presentations, and posters. Details will be explained in class and uploaded on Blackboard.
- Final project: Final project will run for several weeks. Submission requirements will include maps, technical reports, and presentations. Details will be explained in class and uploaded on Blackboard.

Evaluation

This final grade in this course will include a number of assignments, projects, and activities. I will provide specific details and grading policies related to each assignment/project through handouts, distributed via Blackboard. Your grades will be updated regularly on Blackboard. The class is scored out of 472 total points. Nothing will be weighted. You can keep track of your progress in the class yourself using Blackboard. Please feel free to reach out to me with any grading questions and do not wait until the last minute.

Class performance (1 pt for full attendance [or 2.75 hrs] per class+ 1 pt for participation)	24 pts
Methodology reports (6 reports, 8 points each)	48 pts
Assignment 1 (initial submission + revised submission)	30 pts
Assignment 2	50 pts
Assignment 3	50 pts
Quizzes (1 and 2)	20 pts
Midterm project	100 pts
Final project	100 pts
Total	472 pts

Expected Responsibilities and Attitude

- **Attendance and participation:** This class is cumulative, and almost each class builds on the previous material learned. There are two back-to-back sessions on every Thursday. Attendance is mandatory and will be recorded within the first few minutes of the first session and a few minutes prior to the end of the second session. Each week you will receive points for attendance and participation. If a student is disinterested, distracted, or disruptive, the lack of participation will result in a weekly grade reduction. You must notify the instructor in advance if you will have to miss a class, appear late, or leave early due to any critical reasons. Two late attendances will count as one absence. Three absences will result in a "zero" grade in class participation. An absence will be excused if arrangements are made with the instructor in advance for University recognized reasons that are accompanied by documentation. University recognized reasons for excused absences include: Official university activities, documented illness, death of a family member or loved one, inclement weather, and religious observance.

If you must miss a class, you need to follow-up with a classmate and be informed about the materials covered. You may make an appointment with me with additional questions but I will not share class notes or lectures on Blackboard.

- **Group work:** Group work may be needed for some assignments. You need to make arrangements to work in groups outside of regular class hours.
- **Fieldwork:** You may be asked to do some fieldwork on campus or in Glassboro. Details will be discussed in class.
- **Time allocation:** You are expected to spend 4-7 hours (est.) per week for this course outside of regular class sessions.
- **Communication:** For course-related correspondences, you must use your Rowan email accounts. You are expected to check email every day and visit the Blackboard course page on a regular basis. In addition, Rowan emails will be used for conveying urgent or emergency notices (such as class cancellation due to inclement weather). In-person meeting requests with the instructor should be arranged via emails. Email is the preferred form of communication for any course or topic questions, or any issues that arise during the semester. You may expect to receive a response within one business day (<24 hours during the work week, longer on the weekend or other announced period). To ensure clear and professional communication, please ensure your emails include the following four components: (i) A greeting; (ii) The course title in the subject or text of the email; (iii) A detailed question; and (iv) Closing with your full name.
- **Organization:** You should save all materials into a neatly organized folder on the network H:\ drive. This is essential for the success in completing the assignments this semester, and for the records of your efforts into the future. Specific instructions and recommendations for file organization will be announced in class and may be reviewed during the semester.
- **Technology:** Cell phones, tablets, and other electronic devices should be off/silent, unused, and out of sight during class, unless otherwise specified. The use of such devices will negate credits for attendance and participation (after giving a first warning). Using computers or laptops to do homework for other courses or browse to non-course websites is not permitted. You should not create an unnecessary distraction in class. Audio and video recording are not permitted without prior instructor permission.
- **Academic integrity:** Plagiarism is the unacknowledged use of another individual's ideas, words, labor, or assistance. All coursework submitted by a student, including papers, examinations, laboratory reports, and oral presentations, is expected to be the individual effort of the student presenting the work. When it is not, that assistance must be reported to the faculty. If the work involves the consultation of other resources such as journals, books, or other media, those resources

must be cited in the appropriate style. All other borrowed material, such as suggestions for organization, ideas, or actual language, must also be cited. Failure to cite any borrowed material, including information from the Internet, constitutes plagiarism. Academic dishonesty, in any form, will not be tolerated. According to Rowan University policy, students committing any act of academic dishonesty may fail the course, be suspended from the university, or both. You will find Rowan University's policy on academic integrity here:

<https://confluence.rowan.edu/display/POLICY/Academic+Integrity+Policy>

Never (1) turn in an assignment that you did not write yourself—fully or partially, (2) turn in an assignment for this class that you previously submitted in another class, (3) use others' ideas or work without citation, (4) cheat on an exam or quiz, or (5) sign someone else in on an attendance sheet.

Submission and Grading Policies

- All submissions must include student name, date, and lab/assignment number. Digital submissions must follow the following naming convention: <StudentLastName>_<AssignmentNumber>_<DateMonth>. Failure to provide this information will result in a subtraction of 10% of the grade.
- All maps must include a title, north sign, scale, student name, assignment number, course number, data source, legend, and date. Failure to provide any of these map elements will result in a subtraction of 10% or more of the grade.
- Any assignment/project submitted after the deadline will be considered late, unless there is a reason beyond the control of the student. However, you must notify the instructor prior to the deadline and ask for an extension with valid reason and documentation. Otherwise, points will be deducted from the grade obtained by you for that late assignment (10% of the total grade per day that is late). I deserve the right NOT to accept any late submission after a certain period of time (as noted on assignment handouts). For some assignments, late submissions may not be accepted. Please follow assignment handouts.
- Any student who is late to more than three classes will not receive any grade in class performance.

Grading Distribution

Letter Grade	Score	Letter Grade	Score
A	93.3-100	C	73.3-76.5
A-	90-93.2	C-	70-73.2
B+	86.6-89.9	D+	66.6-69.9
B	83.3-86.5	D	63.3-66.5
B-	80-83.2	D-	60-63.2
C+	76.6-79.9	F	59.9 or lower

Resources

Writing Center

The writing center, located in the Campbell Library, 1st floor, can assist you with your writing assignments for any class. The center tutors offer 30 to 60 minute sessions, including face-to-face appointments, online tutoring. It is a free resource for students, faculty, and staff. For appointments: 856-256-4367. To learn more visit: <http://www.rowanwritingcenter.com>.

Tutoring service

Tutoring Services offers academic support in a variety of subjects in order to improve educational achievement. Tutoring is available free of charge to all Rowan University undergraduate students. Small-group or drop-in tutoring is available in most subject areas. To learn more visit: <http://www.rowan.edu/home/advising/current-students/tutoring-services>. *Academic Coaching* provides students in the EOF/MAP program with an academic coach for one-on-one weekly meetings to support students in the acquisition of academic skills such as note-taking, time management, organization, and studying and test-taking strategies. If interested, contact successcenter@rowan.edu.

Special needs and accommodations

Students must provide documentation of their disability to the Academic Success Center in order to receive official University services and accommodations. The Academic Success Center can be reached at 856-256-4234. The Center is located on the 3rd floor of Savitz Hall. The staff is available to answer questions regarding accommodations or assist you in your pursuit of accommodations. Any student who has a need for accommodation due to documented disability should contact the instructor as soon as possible. Students seeking support around these issues can find more information and resources at <http://www.rowan.edu/studentaffairs/asc/disabilityresources>. Students who anticipate an absence due to a scheduled religious observance should contact the faculty personally to make arrangements.

If a major life event of any kind is impacting your schoolwork beyond 1 week in the form of absences, tardiness, difficulty focusing in-class or completing coursework please contact the Office of Student Life/Dean of Students. Their office is equipped to assist students undergoing difficult life events, including communicating with your professors if temporary accommodations are needed to help you through a difficult period. To request a meeting with the Vice President for Student Life and Dean of Students, please e-mail Martha Aderinto at williamsm@rowan.edu or 856.256.4283.

Counseling and psychological services

The Wellness Center at Winans Hall provides physical and mental health services for students, such as time management, test anxiety, relationship issues, career assessment tools, and crisis situations. You can make an appointment during business hours at 856-256-4333. After hours call 856-256-4922 to speak with a counselor on call. If you are in crisis call 856-256-4911. <http://www.rowan.edu/studentaffairs/counseling/>.

Stress and anxiety student support

College, while fun and fulfilling, can be a very stressful time. Everyone can agree dealing with academics, work and relationships on a daily basis is a lot to handle. If you're looking for someone to talk to and a way to de-stress, check out Healthy Campus Initiatives Stress and Anxiety Student Support Group. This peer-led non-clinical is a great way for students to meet one another, learn about stress and how to cope with it. The group meets every Monday at 2:00 p.m. in the Wellness Center Training Room starting on September 10th. No appointment needed. Contact Allie Pearce (pearce@rowan.edu) for more information.

Sexual assault

Sexual assault is one of the most underreported violent crimes on university campuses. To reach a confidential, trained sexual violence advocate 24/7 call 866-295-7378. Rowan provides resources and programs designed to prevent sexual violence and other acts of sexual misconduct, including sexual harassment, provide information about what to do when an incident has occurred, and increase awareness of campus and community resources for support and response. <http://www.rowan.edu/open/studentaffairs2/sexualviolence/>.

STARFISH

The Rowan Success Network powered by Starfish® is designed to make it easier for you to connect with the resources you need to be successful at Rowan. Throughout the term, you may receive email from the Rowan Success Network team (Starfish®) regarding your academic performance. Please pay attention to these emails and consider taking the recommended actions. Utilize the scheduling tools to make appointments at your convenience (i.e. Tutoring, Advising, Financial Aid, etc.). Additional information about RSN may be found at www.rowan.edu/rsn.

Emergency information

During an emergency situation, please check the Rowan website for updates on campus closing. Also check your Temple emails around 5 pm for announcement specific to this class. If I cannot make it to campus due to inclement weather, other emergencies, or illness, I will send an email and post an announcement to Blackboard.

Respect for diversity

Diverse backgrounds, embodiments, and experiences are essential to the critical thinking endeavor. Students are expected to (i) respect individual differences which may include, but not limited to age, cultural background, disability, ethnicity, family status, gender presentation, immigration status, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status; (ii) engage respectfully in discussion of diverse worldviews and ideologies embedded in course readings, presentations. And artifacts, including those course materials that are at odds with personal beliefs and values. Students

seeking support around these issues can find more information and resources at <https://www.rowan.edu/home/student-diversity/resources>.

Conflicts in examination periods during finals week

<http://www.rowan.edu/provost/policies/documents/ConflictsinExaminationPeriodsDuringFinalsWeek.pdf>

Tentative Schedule

Note: Except for changes that substantially affect implementation of the evaluation (grading) statement, this schedule is a guide for the course and is subject to change with advance notice.

Week	Dates	Lecture/ Discussions	Activities	Due Today (before class starts*)	Readings	
1	09/05	Introductions + syllabus	Map making concepts revisited, photo-release forms	-----	Please visit Blackboard every week throughout the semester for a list of required and recommended readings for each session.	
2	09/12	2D geovisualization	Peer feedback on Assignment 1 ArcGIS Online institutional account setup	<ul style="list-style-type: none">• Assignment 1• Methodology report 1		
3	09/19	Web maps/apps + Story maps	Lab: ArcGIS Online + Story Map	<ul style="list-style-type: none">• Revised Assignment 1• Methodology report 2		
4	09/26	3D modeling	Lab: 3D modeling and animation using ArcGIS 3D Analyst Extension	<ul style="list-style-type: none">• Assignment 2 (Web map + app + story map)• Methodology report 3		
5	10/03	3D visualization Launch midterm project	Presentations of Assignments 2 and 3 + peer feedback	<ul style="list-style-type: none">• Assignment 3 (3D modeling + animation)• Methodology report 4		
6	10/10	Midterm project related discussion	Lab: data collection + methodology	<ul style="list-style-type: none">• Midterm project background report• Quiz 1		
7	10/17	Immersive Planning + Virtual Reality	Peer feedback Work session	<ul style="list-style-type: none">• Midterm project findings + draft maps• Methodology report 5		
8	10/24	Work on midterm projects (<i>no class – I am at a conference</i>)				
9	10/31	Mid-semester review	Student presentations (midterm project)	<ul style="list-style-type: none">• Midterm project digital submission		
10	11/07	Launch final project	Organize week-long pop-up exhibition of midterm projects in Robinson Hall	<ul style="list-style-type: none">• Midterm project poster submission + reflection essay		
11	11/14	Final project related discussion	Lab: data collection + methodology	<ul style="list-style-type: none">• Final project background report• Methodology report 6		
12	11/21	Thanksgiving break!!!				
13	11/28	Work session: Final project (data analysis + preliminary results)				
14	12/05	Informal presentation of draft maps and findings + peer feedback + Quiz 2				
Finals	12/12	Final project presentations + report due (follow exam schedule)				

* Unless otherwise noted here or on the assignment handout