

# NRES 394: Ecological Basis for Planning and Design

---

*Course Syllabus*

*Spring 2020*

---

**Dr. Robin Rothfeder**  
**Mondays, 2:00 - 4:50 pm**  
**TNR 271 and TNR 322 (Advanced Computing Lab)**

Office: TNR Room 180

Office Hours: Mondays and Thursdays 10-11 am, or by appointment. I also have an open-door policy. If you stop by and my office is open, I will generally be available for a quick meeting.

Office Phone: 715-346-4091

E-mail: rrothfed@uwsp.edu (preferred method of contact)

---

## **I. Course Description**

How can human communities develop and grow in ways which conserve resources, protect and enhance environmental quality, and promote resilience and sustainability? This course introduces ecological planning and design as an important field which answers this question, and in which Natural Resource Planning students can (and should) play an essential leadership role. The focus is on integrating key planning tools and analyses at a variety of scales (region, landscape, site, etc.) with principles of ecosystem science, landscape ecology, and collaborative governance.

*Materials:* There is no required textbook for this course. Weekly readings will be posted on the course learning management platform (CANVAS). In addition, students should have access to sufficient network storage or an external hard drive in order to store and process spatial data related to this course.

## **II. Teaching Philosophy and Approach**

My goal is to help you develop the knowledge, skills, and creativity required to begin solving the sustainability challenges facing humanity, as well as creating and capitalizing on new opportunities. My teaching approach is to create a learning environment that is engaging, interactive, participatory, and hands-on. Every student will be responsible for a significant amount of the learning that takes place both inside and outside the classroom.

## **III. Learning Objectives**

This class is structured in a planning studio format that meets once a week for a three-hour block, in order to facilitate in-class activities and project development. Over the course of the semester students will cultivate a number of professional skills. By the end of the semester students will be able to:

1. Relate ecosystem and ecological concepts to planning, design, land use, and development activities;
2. Critically evaluate and discuss key readings which help to establish an ecological basis;
3. Review, analyze, and synthesize lessons from ecological planning and design case studies;
4. Prepare a land use plan with an ecological basis as a group project; and
5. Develop, hone, and apply professional skills (software, analytical, communication, etc.) through a group project.

## IV. Assignments

This course will require a significant investment of time and energy, both in and out of the classroom. The quality of the work that you produce should reflect your highest effort, and you should strive to exceed expectations throughout the semester.

### *1. Attendance and Participation (7.5%, 75 points total, with possible deductions up to 30%)*

Because this course focuses on collaborative work during class time, **class attendance is mandatory** except with prior agreement. Absences from class negatively affect learning for both you and your classmates. Thus, your final grade will be reduced by 20 points for each unexcused absence during the semester. In addition, students with repeated unexcused absences may be removed from project teams and required to complete an alternate assignment individually. Consistent and enthusiastic in-class participation will account for 7.5% (75 points) of your final grade.

### *2. CANVAS Reading Discussions (15%, 150 points total)*

Thinking through the readings together is an important aspect of this course. As a result, there will be 10 online discussions of readings during the semester, worth 15 points each. These discussions will take place in threads posted to CANVAS. For every discussion, each student will be required to submit at least 1 detailed question relevant to the readings and at least 2 detailed responses to questions posed by other students. Discussion posts should be carefully composed and well written, should clearly demonstrate that you have completed and reflected upon the readings, and should follow the course rules for respectful and constructive dialogue. All posts will be due by 11:59 pm on Friday for the week of the assigned readings.

### *3. In-Class Activities (25%, 250 points total)*

The Discussion/Lab portion of this course will primarily be dedicated to completing in-class activities which develop and hone your skills with key planning tools and analyses. These activities will include mapping biophysical, social, and other landscape features in GIS; analyzing population and economic trends in Microsoft Excel; and designing site-scale development concepts in AutoCAD. There will be a total of 10 in-class activities worth 25 points each. Specific prompts will be provided each week that an in-class assignment is due. All assignments will be due by 11:59 pm on Friday for the assigned week.

### *4. Case Study (7.5%, 75 points)*

To help our class further explore complex topics in ecological planning and design, you will be assigned a case study to analyze and present for the rest of class, in groups of 3-4. These case studies will be based upon Trust for Public Lands (TPL) Greenprint Projects (see <http://www.tpl.org/our-work>). Specific study areas and assignment instructions will be provided in Week 2, as well as forming project teams.

### *5. Semester Project (30%, 300 points total)*

The semester project for NRES 394 will require you to improve upon and synthesize the skills you learn throughout the course. The project will be divided into 2 parts. In Part 1 (7.5% of total grade), you will choose a work partner and a study area (a county in Wisconsin), and will analyze the planning and design context for this study area. In Part 2 (22.5%), you will replicate and refine all previous in-class activities for this study area, create a final synthesized report which includes all of your analyses in a thorough and nuanced sustainable development plan, create a final poster which graphically displays your project results, and present the finished work product in class. Specific instructions and guidelines will be provided at appropriate times over the course of the semester.

### *6. Exams (15%, 150 points total)*

The course will include a midterm (5%, 50 points) and final exam (10%, 100 points), which will test your understanding of readings, lectures, and applied planning and design skills and tools.

Due Date	Brief Description	Points
Fridays, 11:59 pm	Reading Discussions (10, 15 points each)	150
Fridays, 11:59 pm	In-class Activities (10, 25 points each)	250
Week 7, in class	Case Study Presentations	75
Week 8, in class	Midterm Exam	50
Week 8, Friday by 11:59 pm	Semester Project Part 1	75
Week 15, in class	Semester Project Final Presentation	50
Week 15, in class	Semester Project Final Poster	50
Week 15, Friday by 11:59 pm	Semester Project Final Report	125
Thursday, May 14, 8:00-10:00 am	Final Exam	100
Weekly	Course Attendance and Participation	75
<b>Total</b>		<b>1,000</b>

## V. Course Policies

### 1. Grading Scale

92.6% or higher = A  
 90.0 – 92.5% = A-  
 87.6 – 89.9% = B+  
 82.6 – 87.5% = B  
 80.0 – 82.5% = B-  
 77.6 – 79.9% = C+

72.6 – 77.5% = C  
 70.0 – 72.5% = C-  
 67.6 – 69.9% = D+  
 62.6 – 67.5% = D  
 60.0 – 62.5% = D-  
 Less than 60% = F

### 2. Late Assignments

To receive full credit, assignments must be submitted by the stated deadline. Assignments turned in after the deadline will be considered late and will be subject to a 20% per-day late penalty, including weekends. All assignments are due as file submissions in CANVAS unless otherwise noted.

### 3. Academic Integrity

All work (unless part of a group project) must be done independently. Cheating, plagiarism, and other forms of academic misconduct will not be tolerated and will result in a grade of zero on the assignment. As you may encounter a number of complicated questions regarding how to cite sources of information (e.g. spatial data, images, or community data), I encourage you to discuss any questions you may have about citation, paraphrasing, or related topics with me prior to turning in an assignment. In addition, assignments turned in through CANVAS will be linked to turnitin.com – a program that compares your work to other sources to check for originality. The UWSP Community Bill of Rights and Responsibilities specifies the University policies regarding academic misconduct and disciplinary action. This can be found at the following web address: <https://www.uwsp.edu/dos/Pages/Academic-Misconduct.aspx>.

A note on free riding: This will not be tolerated. Students who do not contribute meaningfully to all required elements of group projects will either a) be docked credit for relevant portions of the project, and/or b) be removed from the group and required to complete separate deliverables individually. Again, if there is a problem with group dynamics, it essential that we address it as soon as possible.

#### **4. Other Course Policies**

- Unless otherwise noted (see schedule, below), the class will meet in TNR 271 from 2:00-2:50 pm and in TNR 322 (the CNR Advanced Computing Lab) from 3:00-4:50 pm
- Posting course materials onto course-sharing websites directly violates the instructor's copyright on his intellectual property; permission to do so is unequivocally denied.
- All written work is expected to be grammatically correct, neat, and well organized. Work that is sloppy, hard to read, does not follow the prescribed format, and/or contains many spelling and/or grammatical errors will receive a grade of zero points.
- Cell phones will be put into pockets/backpacks/bags or otherwise stowed away during lecture and discussion. Appearance of your cell phone during class will indicate your disinterest in the topic and will thus count as an absence, and you will lose attendance points when this occurs.

#### **5. Emergency Preparedness**

- In the event of a medical emergency, call 911 or use one of the red emergency telephones, which are located outside Room 151, outside Room 172, between Rooms 252 and 255, and between rooms 219 and 221 (across the hall). Offer assistance if trained and willing to do so. Guide emergency responders to victims when instructed.
- In the event of a tornado warning, stay in the classroom. Lecture and discussion rooms in TNR both provide appropriate shelters.
- In the event of a fire alarm, evacuate the building in a calm manner. Meet at the northwest corner of parking lot E. Notify the instructor and/or emergency command personnel of any missing individuals.
- Active Shooter – Run/Escapes, Hide, Fight. If trapped, hide, lock doors, turn off lights, spread out and remain quiet. Follow instructions of emergency responders.
- See the UW-Stevens Point Emergency Management Plan at [www.uwsp.edu/rmgt](http://www.uwsp.edu/rmgt) for details on all emergency response issues at UWSP.

#### **6. Accessibility Statement**

If you have a learning or physical challenge which requires classroom accommodation, please contact the UWSP Disability Services office with your documentation as early as possible in the semester:  
103 Student Services Center, (715) 346-3365; TTY (715) 346-3363;  
[www.uwsp.edu/special/disability/studentinfo.html](http://www.uwsp.edu/special/disability/studentinfo.html)

**\*\* THE SYLLABUS, ASSIGNMENTS, READINGS, GRADE WEIGHTS, AND COURSE SCHEDULE ARE ALL SUBJECT TO CHANGE. THE INSTRUCTOR WILL NOTIFY THE STUDENTS AS SOON AS ANY SUCH CHANGES ARE MADE AND WILL PROVIDE UPDATED COURSE MATERIALS AS APPROPRIATE. \*\***

## NRES 394: Ecological Basis for Planning and Design

Course Schedule

Spring 2020

Note: There will be an interactive version of this schedule posted on CANVAS, which will be updated weekly with links to course content.

	TOPIC	READING	DUE
Week 1 1/20	<b>Foundations of Ecological Planning and Design</b>	<ul style="list-style-type: none"> <li>○ Steiner, <a href="#">Landscape Ecological Urbanism</a></li> <li>○ <a href="#">Design with Nature Reflections</a></li> <li>○ <a href="#">ESRI Map Books</a></li> </ul>	○ Reading Discussion 1
Week 2 1/27	<b>Ecosystem Services</b> <i>Discussion: GIS Basics, Introduce Case Study and Project Part 1</i>	○ Sustainable Sites Executive Summary, Chapter 1, Chapter 3	<ul style="list-style-type: none"> <li>○ Reading Discussion 2</li> <li>○ GIS Activity 1</li> </ul>
Week 3 2/3	<b>Land Trusts, Strategic Conservation 1</b> <i>Discussion: GIS Analysis Basics</i>	<ul style="list-style-type: none"> <li>○ Peruse <a href="#">NCCT Website</a></li> <li>○ Amundsen and Culp, pp. 15-19</li> <li>○ Amundsen Chapter 1, pp. 24-40</li> </ul>	<ul style="list-style-type: none"> <li>○ Reading Discussion 3</li> <li>○ GIS Activity 2</li> </ul>
Week 4 2/10	<b>Farmland Loss, Rewilding</b> <i>Discussion: Work Session</i>	<ul style="list-style-type: none"> <li>○ Berry pp. 3-13</li> <li>○ Foreman Chapter 8, pp. 128-143</li> </ul>	○ Reading Discussion 4
Week 5 2/17	<b>Suitability Analysis, Strategic Conservation 2</b> <i>Discussion: GIS Intro to Analysis</i>	<ul style="list-style-type: none"> <li>○ Amundsen Chapter 4, pp. 172-189, 195-204</li> <li>○ Foreman Chapter 10, pp. 157-167</li> </ul>	<ul style="list-style-type: none"> <li>○ Reading Discussion 5</li> <li>○ GIS Activity 3</li> </ul>
Week 6 2/24	<b>Site Analysis</b> <i>Discussion: GIS Land Cover Analysis</i>	<ul style="list-style-type: none"> <li>○ Marsh, Vegetation</li> <li>○ Marsh, Topography</li> </ul>	<ul style="list-style-type: none"> <li>○ Reading Discussion 6</li> <li>○ GIS Activity 4</li> </ul>
Week 7 3/2	<b>Case Study Presentations</b> <i>Discussion: GIS Land Cover Change</i>	<ul style="list-style-type: none"> <li>○ Marsh, Stormwater</li> <li>○ Marsh, Wetlands</li> </ul>	<ul style="list-style-type: none"> <li>○ Presentations due in class (files due in CANVAS by 1 pm)</li> <li>○ GIS Activity 5</li> </ul>
Week 8* 3/9	<b>Midterm</b> <i>Discussion: Work Session</i>	None	○ Semester Project Part 1 (due Friday, 5/13 by 11:59 pm)
3/14-3/22	<b>SPRING BREAK</b>		
Week 9 3/23	<b>Human Dimensions of Ecological Planning</b> <i>Discussion: GIS Fragmentation Analysis</i>	<ul style="list-style-type: none"> <li>○ Lockwood et al., Governance Principles</li> <li>○ Sharp et al., Collaborative Management</li> </ul>	<ul style="list-style-type: none"> <li>○ Reading Discussion 7</li> <li>○ GIS Activity 6</li> </ul>
Week 10 3/30	<b>Population and Economic Analysis</b> <i>Discussion: Population Analysis</i>	<ul style="list-style-type: none"> <li>○ Rayer, Population Forecast Errors</li> <li>○ Rothfeder, Salt Lake County Water Budget</li> </ul>	○ Population Analysis Activity

<b>Week 11</b> 4/6	<b>Conservation Design 1</b> <i>Discussion: Economic Analysis</i>	<ul style="list-style-type: none"> <li>○ Arendt: Growing Greener</li> <li>○ Arendt: Linked Landscapes</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Reading Discussion 8</b></li> <li>○ <b>Economic Analysis Activity</b></li> </ul>
<b>Week 12</b> 4/13	<b>AutoCAD Lab</b> <i>Discussion: Work Session</i>	None	<ul style="list-style-type: none"> <li>○ <b>Site Design Activity</b></li> </ul>
<b>Week 13</b> 4/20	<b>Full Class Work Session</b>	<ul style="list-style-type: none"> <li>○ Jackson, Integrated Eco-Village Design</li> <li>○ Carter, Developing Conservation Subdivisions</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Reading Discussion 9</b></li> <li>○ <b>Attend Symposium</b></li> </ul>
<b>Week 14**</b> 4/27	<b>Green/Blue Urbanism, Biophilic Design</b> <i>Discussion: Work Session</i>	<ul style="list-style-type: none"> <li>○ Kellert, Biophilic Design</li> <li>○ Beatley, Biophilic Cities, Blue Urbanism</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>Reading Discussion 10</b></li> </ul>
<b>Week 15***</b> 5/4	<b>Project Presentations</b>		<ul style="list-style-type: none"> <li>○ <b>Presentation due in class (files due in CANVAS by 1 pm)</b></li> <li>○ <b>Reports, Posters, and Peer Evaluations due Sunday, 5/10 by 11:59 pm</b></li> </ul>
<b>Thurs. 5/14,</b> <b>8-10 am</b>	<b>FINAL EXAM***</b>		

*\* Class will meet in TNR 271 from 2-4 pm, TNR 322 from 4-5 pm*

*\*\* TNR 322 (ACL) not available until 4 pm (students may use TNR 356 beforehand)*

*\*\*\* Class will meet only in TNR 271*