

# **NRES774: Model-Based Decision Making in Natural Resource Management**

**University of Wisconsin-Stevens Point**

*ONLINE*

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## **COURSE SYLLABUS**

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### **Instructor Information**

**Instructor:** Dr. Shuva H. Gautam

**Office:** TNR 367

**Phone:** (715) 346-3144

**Email:** sgautam@uwsp.edu

**Online Office Hours:** Tuesdays 10 - 11 am. However, students are encouraged to email me at any time with a question and I will respond within 24 hours. We can setup a time outside of office hours to meet individually if you require assistance.

**Textbook:** I will provide pdf of journal articles/book chapters as needed for the course.

### **Course Description:**

This course introduces the concept of modeling to support decision-making in the field of natural resources management. Decision-making can be a complex process that involves multiple stakeholders with different objectives, and exacerbated by information uncertainty. Modeling tools introduced in the course will allow students to evaluate opportunity cost, alternatives, compromises, and determine optimal decisions.

### **Learning Outcomes – By the end of the course students will be able to:**

- 1) Explain the complexity of decision-making in natural resources management.
- 2) Identify features of models used for decision support in natural resources management.
- 3) Formulate mathematical programming models to support decision-making.
- 4) Extract solutions using a software
- 5) Interpret solutions and prepare reports for stakeholders.
- 6) Solve a specific problem by selecting an appropriate model and devising implementation plan.

### **Grade Categories**

Quizzes and Practice Exercises– **10%**

Discussions – **30%**

Assignments – **40%**

Final Project – **20%**

## Grade Scale

Numerical Average	Letter Grade	Numerical Average	Letter Grade
92-100	A	78-79	C+
90-91	A-	72-77	C
88-89	B+	70-71	C-
82-87	B	68-69	D+
80-81	B-	60-67	D
<60		F	

## Course Structure

This course uses Canvas, Canvas can be accessed via a launch portal at <https://www.uwsp.edu/canvas> using your campus login and password. Help in Canvas is available at the bottom of the launch portal, and through the “Help” menu within Canvas. A student orientation / training course is available for self registration at <https://uws.instructure.com/enroll/FNRAL8>

## Assignment submission and feedback

Please submit all reports and assignments in Canvas and DO NOT email them to me as they may end up in the Junk folder. I will try my best to grade and return all assignments within a week.

## Assignment completion and late work policy

All assignments for this course will be submitted electronically through Canvas unless otherwise instructed. Please be sure to pay close attention to deadlines; assignments must be submitted by the given deadline or special permission must be requested from instructor before the due date. Extensions will not be given except under extreme circumstances.

All discussion assignments must be completed by the assignment due date and time. Late or missing discussion assignments will affect the student’s grade.

## Viewing Grades in Canvas

Points you receive for graded activities will be posted to the Grades section of Canvas. Look at your recent feedback on the home page or click on the Grades link to view your points.

Your instructor will update the online grades each time a grading session has been complete—typically 7 days following the completion of an activity. You will receive a notification from Canvas when new grades are posted depending on your notification settings.

## Course Technology Requirements

- Minimum recommended computer and internet configurations for online courses can be found [here](#).
- You will also need access to the following tools to participate in this course.

- webcam
- microphone
- printer
- a stable internet connection (don't rely on cellular)

## Student Expectations

In this course you will be expected to complete the following types of tasks.

- communicate via canvas mail
- complete basic internet searches
- download and upload documents to Canvas
- read documents online
- view online videos
- complete quizzes/tests online
- participate in synchronous and asynchronous online discussions

## Using the 'Help Me' Discussion Forum

Please submit all non-personal questions to the 'Help Me' forum located in the Syllabus. I will respond to questions here and will not answer general questions submitted via email.

You should check the Help Me forum anytime you have general questions about the course.

I encourage students to help each other by answering other students' questions posted in the Help Me forum.

All private/personal questions should be submitted via the Inbox in Canvas or directly to the instructor by clicking Help→Ask Your Instructor a Question in the main left navigation column in Canvas.

## Support for Online Students

[UWSP Online-Online Student Support](#) - The UWSP Online-Student Support page is the go-to resource for online students. On the page you will find technology instruction sheets, support videos, and more.

[UWSP Online Student Orientation](#) - This self-paced tool is a great starting point for online students who want to assess and build their online learning skills. Use this link to access the tool.

## Technology support:

If you have Canvas related questions, click on the Help button located at the bottom of the main left navigation column in Canvas and contact Canvas directly with your question.

For all other technology support, please contact the [IT Technology Service Desk](#) by calling (715)-346-HELP (4357)

## Netiquette Guidelines

Netiquette is a set of rules for behaving properly online. Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Working as a community of learners, we can build a polite and respectful course community.

The following netiquette tips will enhance the learning experience for everyone in the course:

- Do not dominate any discussion.
- Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Popular emoticons such as 😊 can be helpful to convey your tone but do not overdo or overuse them.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Never make fun of someone's ability to read or write.
- Share tips with other students.
- Keep an "open-mind" and be willing to express even your minority opinion. Minority opinions have to be respected.
- Think and edit before you push the "Post Reply" button.
- Do not hesitate to ask for feedback.
- Using humor is acceptable.

## Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider unenrolling from a course. Refer to the UWSP [Academic Calendar](#) for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1) documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

## Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned under extenuating circumstances. All incomplete course assignments must be completed within deadline given by the instructor.

## Inform Your Instructor of Any Accommodations Needed

If you have a documented disability and verification from the [Disability and Assistive Technology Center](#) and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to Disability Services and meet with a Disability Services counselor to request special accommodation *before* classes start.

The Disability and Assistive Technology Center is located in 609 Albertson Hall and can be contacted by phone at (715) 346-3365 (Voice) (715) 346-3362 (TDD only) or via email at [datctr@uwsp.edu](mailto:datctr@uwsp.edu)

### **Statement of Policy**

UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability.

*If modifications are required due to a disability, please inform the instructor and contact the Disability and Assistive Technology Center in 609 ALB, or (715) 346-3365.*

## Commit to Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

## UWSP Academic Honesty Policy & Procedures

### **Student Academic Disciplinary Procedures**

UWSP 14.01 Statement of principles

The board of regents, administrators, faculty, academic staff and students of the university of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the university of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

UWSP 14.03 Academic misconduct subject to disciplinary action.

(1) Academic misconduct is an act in which a student:

(a) Seeks to claim credit for the work or efforts of another without authorization or citation;

(b) Uses unauthorized materials or fabricated data in any academic exercise;

(c) Forges or falsifies academic documents or records;

(d) Intentionally impedes or damages the academic work of others;

(e) Engages in conduct aimed at making false representation of a student's academic performance; or

(f) Assists other students in any of these acts.

(2) Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

**Inclusive Environment:**

This course (and our university!) is an inclusive environment. This course might foster discussion, with respectful exchange of ideas and opinions. Disrespect and disparagement will not be tolerated. We have a great opportunity to learn from each other, and to appreciate and understand our differences. See also the CNR Principles of Professionalism, the Society of American Foresters Code of Ethics, and the Forestry Discipline's anti-harassment statement.

### Schedule (subject to change)

Topic	Module	Content (Learning Materials)	Learning activities	Points
<b>Week 1</b> Intro to the course	N/A	Introduction to the course Excel basics	Introduction	5
<b>Week 2</b> Intro to Decision making modelling	1	Reading chapter 1 & 2 (Conroy)	<i>Discussion 1</i>	25
<b>Weeks 3-5</b> Linear Programming	2	General introduction to Linear Programming	<i>Discussion 2</i>	25
			Quiz 1	40
		Formulation and graphical solutions	Practice exercise 1	20
		Use of spreadsheet	<i>Assignment 1</i>	50
<b>Weeks 6,7</b> Integer Programming	3	General Intro	<i>Discussion</i>	25
			Quiz 2	40
		Formulation	Practice exercise 2	20
			<i>Assignment 2</i>	50
<b>Weeks 8-10</b> Multi-criteria/objective decision making	4	General Introduction to Multi-Criteria Decision	Discussion 3	25
			Quiz 2	40
		Goal Programming	Practice exercise 3	20
		Analytic Hierarchy Process	Practice exercise 4	20
			<i>Assignment 4</i>	50
<b>Weeks 11-13</b> Project Management	5	General Intro	<i>Discussion 4</i>	25
			Quiz 3	40
		Application	Practice exercise 5	20
			<i>Assignment 4</i>	50
<b>Weeks 14-15</b> Student Project	N/A	Final Project	Submit your title and problem description (introduction), Submit the model formulation and your solution	250