Department of
Community Sustainability

MICHIGAN STATE UNIVERSITY | College of Agriculture and Natural Resources

CSUS 425
Environmental Impact Assessment

Spring 2017
Monday, 9:10 a.m. – 12:00 p.m.
019 Natural Resources Building

Instructor: Christopher Grobbel, PhD
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Office Hours: Thursdays, 2:00 pm – 4:00 pm
or by appointment

Catalog Course Description: Environmental impact assessment of proposed and built projects and plans. Regulatory frameworks and implementation issues.

3 credits, Lecture/Recitation/Discussion 3 hours.

Course Outcomes: Students who complete this course will be able to:

1. Identify the essential components and principles of environmental impact assessment and sustainable community development.
2. Identify and apply a cross-disciplinary and multifaceted approach to understanding environmental quality and impact assessment.
3. Develop and apply scientific and critical thinking, and analytical skills to evaluate the credibility and sustainability of policy positions and scientific arguments.
4. Improve decision-making capabilities within the context of sustainability.
5. Use information technologies in their formal and informal learning.
6. Consider the importance of the regulatory framework in undertaking and understanding environmental impact assessment.
7. Apply life cycle analysis, systems thinking approaches in cumulative environmental impact assessment.

These course outcomes support the Department of Community Sustainability undergraduate program competencies of critical thinking, systems thinking, and ethics. Successful completion of this course provides students with the background needed to frame complex problems and address them systemically in order to successfully complete additional courses in the major. Students can learn more about the Department of Community Sustainability undergraduate program competencies at http://www.csus.msu.edu/undergraduate/sustainability_core. In addition, this course supports Michigan State University's Undergraduate Learning Goals of

analytical thinking and integrated reasoning. More information about MSU's Undergraduate Learning Goals is available at http://learninggoals.undergrad.msu.edu/.

Course Overview: This course will introduce students to key concepts of and develop skills in project management and field techniques within the specialty area of environmental impact assessment to provide a foundation for understanding and pursue practical objectives for employment in the fields of environmental impact assessment in the public or private sectors, environmental and community planning, and/or environmental consulting.

The course is also informed by and built upon environmental science, current regulation, and concepts of sustainability. Sustainability is generally understood to require integration of theory and methods from a number of different scientific and social science disciplines. Our approach is to suggest numerous fundamental paradigms that guide sustainability in resource and community planning and environmental management today. One is grounded in the debate over limits to economic growth and the indefinite expansion of resource utilization implied by global economic development and increasing human population. Another in both social and environmental scientists' growing understanding of the fragility and vulnerability of the socio-technical and ecological systems on which human beings depend. A third is an overriding guiding principle of social and environmental justice in meaningful community-led planning and environmental management practices. These paradigms are not unrelated.

Course Methods: We will rely upon lecture, class discussion and required readings relative to the methods, concepts and generally accepted professional practices of environmental impact assessment. We will also undertake and rely on field practicum to exemplify, operationalize and practice skills related to course concepts. Student performance will be evaluated in accordance with the activities discussed below under "Grading."

Required Text: Environmental Impact Assessment: A Practical Guide, by Betty Bower Marriott, McGraw Hill, 1997, ISBN 0-07-040410-0 (available at the MSU Bookstore, International Center, MSU main campus (required)). This text will be supplemented with documents, agency guidance, articles and reports posted on the CSUS 425 Desire to Learn (D2/L) site (https://d2l.msu.edu). Course syllabus, power point lectures and supporting materials will be posted weekly in advance of course modules on the CSUS 425 Desire to Learn (D2L) site (https://d2l.msu.edu).

Grading: Grading for this course will be based on the following point system:

Total possible points:	**250 points**
Exam #1	100 points
Final exam/Exam #2	100 points
Class attendance/participation/field practice	50 points

Grading Scale:	Grade	Points
	4.0	250 - 225
	3.5	224 - 200
	3.0	199 - 175
	2.5	174 - 150
	2.0	149 – 125
	1.5	124 – 100
	1.0	99 – 75
	0.0	under 75

Week 1 – Components of Environmental Impact Assessment

1. **January 11, 2017** - *Introduction: Course structure, grading policy, and introductions. Components of environmental impact assessment. Environmental assessment for land use plan approvals, environmental litigation, and the National Environmental Policy Act (NEPA) environmental impact assessment process – environmental assessment (EA), finding of no significant impact (FONSI), draft environmental impact statement (dEIS) and final environmental impact state (fEIS). Case study – M72 Highway/Lautner Road corridor EA, Grand Traverse Band of Ottawa and Chippewa Indians, Grand Traverse County, MI.*

Reading Assignment: Week 1: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Chapter 1: Foundation and Chapter 2: Environmental Documents and Processing, pp. 1-37. D2/L - M-72/Lautner Road Environmental Assessment report document (10/14).

Week 2 – Soil and Water Impact Assessment (Part 1)

2. **January 18, 2017** – Soil, groundwater and surface water impact assessment (Part 1). *Case studies: Kolke Creek case (i.e., Anglers of the AuSable v Merit Energy), Hayes Township, Otsego County, Michigan; and Boyne Fall Mini-Mart, Boyne Falls, Charlevoix County, Michigan.*

Reading Assignment: Week 2: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Chapter 18: Water Resources, pp. 227-234. *D2/L* - MDEQ Verification of Soil Remediation (VSR) guidance document; MDEQ Groundwater Monitoring Guidance; and US EPA SW-846 Test Methods Manual (2014).

Week 3 – Soil and Water Impact Assessment (Part 2)

3. **January 25, 2017** – Soil, groundwater and surface water impact assessment (Part 2). *Case studies: and Brown Bridge dam failure, Boardman River, Grand Traverse County, Michigan, and Ethyl Corporation facility, Ferndale, Wayne County, Michigan.*

Reading Assignment: Week 3: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Chapter 18: Water Resources, pp. 234-251. D2/L - MDEQ Part 201 Table 1 Groundwater Cleanup Criteria Residential/Nonresidential (2013); MDEQ Part 201 Table 2 Soil Cleanup Criteria Residential (2013); MDEQ Part 201 Table 3 Soil Cleanup Criteria

Nonresidential (2013); MDEQ Part 201 Cleanup Criteria Footnotes (2013); and MDEQ Part 201 Cleanup Criteria Changes (2013).

Week 4 – Noise, Odor and other Nuisance Impact Assessment

4. **February 1, 2017** – *Introduction to noise, odor and nuisance impact assessment and regulation. Case studies – Sandy Paws commercial kennel, Ann Arbor Township, Washtenaw County; Small Scale Wind Generator Private Party Dispute, Cleveland Township, Leelanau County; Michigan; and Cherry Festival Air Show, Traverse City, Grand Traverse County, Michigan.*

Reading Assignment: Week 4: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Chapter 15: Noise, pp. 181-195.

Week 5– Wetland Delineation

5. **February 8, 2017** – *Wetland Delineation (Part 1). An introduction to wetland delineation and mapping.*

Reading Assignment: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Week 5: Chapter 20: Wetlands, pp. 267-282. D2/L - US Army Corps of Engineers Wetlands Delineation Manual,1987.

Week 6 – Wetland Delineation

6. **February 15, 2017** – *Wetland Delineation (Part 2): An introduction to wetland delineation and mapping. Case study: Boyne Hydro, Edenville, Gladwin County, Michigan.*

Reading Assignment: Week 6: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Chapter 20: Wetlands, pp. 267-282. D2/L - US Army Corps of Engineers Wetlands Delineation Manual,1987.

Week 7 – Habitat and Wildlife Impact Assessment

7. **February 22, 2017** – Components, principles and regulations regarding wildlife impact, threatened and endangered species, migratory birds and wildlife habitiat. *Case studies: Heritage Energy Commercial Wind Electric Generation Farm, Garden Peninsula, County, Michigan; and Michigan Land Air Water Defense (MLAWD) v. MDNR (2012), Allegan State Game Area, Barry State Game Area & Yankee Springs State Recreation Area, Allegan and Barry Counties, Michigan.*

Reading Assignment: Week 7: Environmental Impact Assessment: A Practical Guide, by Bower Marriott Chapter 21: Vegetation and Wildlife, pp. 283-298.

Week 8 – Mid-term Exam (#1)

8. **March 1, 2017** - **Exam #1** ***(100 Points Possible)***.

Week 9 – Spring Break (no class)

9. **March 8, 2017** – No class, MSU closed. (Spring break Monday, March 6, 2017 through Friday, March 10, 2017).

Week 10 – Field Practice Soil Sampling, Groundwater Monitoring and Sampling (Part 1)

10. **March 15, 2017** – Field practice – soil sampling/analysis, groundwater gradient/flow, monitoring well installation, development, sampling and results interpretation.

Week 11 – Field Practice Soil Sampling, Groundwater Monitoring and Sampling (Part 2)

11. **March 22, 2017** – Field Practice - soil sampling methods, results analysis, groundwater gradient/flow, monitoring well installation, development, sampling and results interpretation.

Week 12 – Field Practice – Surface water sampling and flow measurement

12. **March 29, 2017** – Field Practice - Surface water sampling methods, results interpretation, summary of macro-invertebrate study methods, and U.S. Geological Survey flows and levels measurements.

Week 14 – Field Practice – Wetland Delineation (Part 1)

14. **April 5, 2017** – Field Practice - Summary of the U.S. Army Corps of Engineers wetland delineation manual method (Part 1).

Week 15 – Field Practice – Wetland Delineation (Part 2)

15. **April 12, 2017** – Field Practice - Summary of the U.S. Army Corps of Engineers wetland delineation manual method (Part 2).

Week 16 – Field Practice – Noise Measurement and Interpretation

16. **April 19, 2017** – Field Practice - field measurement of noise and ambient sound. Field measurement results compilation, interpretation, and reporting.

Week 17- Final Exam

17. **April 26, 2017 Final exam -** 019 Natural Resources Building **-** *Exam #2 (100 Points Possible)*.

Exams: No make-up exams will be scheduled in the event of an unexcused absence from class during an examination period. A written statement from a doctor will be required if medical reasons exist for absence from an examination period. In the event that absence during an examination exists, alternative means of grading student progress may be utilized.

Class Participation: Class participation will be graded on the basis of class attendance/punctuality, willingness to participate, courtesy, engagement, scholarship, professionalism and the students' demonstration of ability to integrate course concepts in questions asked of speakers and/or the course instructor.

Participation and interaction with other students is a required component of this class. It is impossible to fulfill this requirement if you are not present for class meetings. Attendance will be taken each class day. Students who have three absences or fewer have an opportunity to earn all 50 possible class participation points. 5 points will be deducted for each absence in excess of three. *NOTE: The three missed class day grace period is expected to cover university excused absences including illness, family emergencies and university sanctioned activities such as student clubs, organizations or activities associated with other classes.* It is also expected to cover absences that occur because of late enrollment in the class, and other exigencies that students experience throughout the semester. There will not be exceptions to this policy except in extremely unusual circumstances. If you anticipate problems complying with this requirement, *notify the instructor as soon as you become aware of the problem!* It is not necessary to notify instructors or present excuses for specific absences.

ALSO NOTE: Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If you require a grief absence, you should complete the "Grief Absence Request" web form (found at https://www.reg.msu.edu/sitemap.aspx?Group=7) no later than one week after knowledge of the circumstance. I will work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence.

Reading Assignments: Reading assignments are required for CSUS 425: Environmental Impact Assessment from Environmental Impact Assessment: A Practical Guide, by Bower Marriott (available at the MSU Bookstore, International Center, MSU main campus). This text will be supplemented with pdf documents, guidance, articles and reports posted on the CSUS 425 Desire to Learn (D2L) site (https://d2l.msu.edu). Course supporting materials will be posted weekly on the CSUS 425 Desire to Learn (D2L) site (https://d2l.msu.edu). Please see the instructor if alternative or additional accommodations are needed for access to course materials.

Important Dates:

Monday, 1/16/17 - University closed/classes cancelled– Martin Luther King Day

Monday 3/6/17 – Friday 3/10/17 - University open/classes cancelled – Spring Break

Monday, 5/1/17 thru Friday, 5/5/17 - Final exams week

Technology Use: While in class, students should turn off and put away their cell phones or other devices. Sending and receiving texts or email messages by computer, tablet or smart phone during class are distracting to students and instructors is prohibited. The instructor will call out students who are using such devices for such purposes during class and ask them to stop or leave the class.

Accommodations for Students with Disabilities: Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center

for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to an instructor during the second week of class and/or two weeks prior to the accommodation date (i.e., test, project, etc.). Requests received after this date may not be honored.

Academic Integrity: Article 2.III.B.2 of the Academic Freedom Report states: "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the Department of Sustainability adheres to the policies on academic honesty specified in General Student Regulation 1.0, *Protection of Scholarship and Grades*; the all-University Policy on *Integrity of Scholarship and Grades*; and Ordinance 17.00, Examinations. Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Also, you are not authorized to use the www.allmsu.com Web site to complete any course work in this course. Students who violate MSU regulations on Protection of Scholarship and Grades will receive a failing grade in the course or on the assignment.

Instances of plagiarism constitute academic dishonesty and will result in a grade of zero for the assignment in which plagiarism occurs. See https://www.msu.edu/unit/ombud/academic-integrity/plagiarism-policy.html for a definition and discussion of plagiarism.

Faculty are required to report all instances in which a penalty grade is given for academic dishonesty. Students reported for academic dishonesty are required to take an online course about the integrity of scholarship and grades. A hold will be placed on the student's account until such time as the student completes the course. This course is overseen by the Associate Provost for Undergraduate Education.

Citations and references: The APA format should be used for any in-text citations and reference lists when you rely on information from other sources for writing homework assignments. A good reference site for APA style can be found at https://owl.english.purdue.edu/owl/resource/560/01/.