Environmental Fate and Impact of Pollutants in Soil and Water
Environment and Natural Resources 5273
Course Syllabus, Spring Semester 2019
164 Howlett Hall, TuTh 9:35AM - 10:55AM

INSTRUCTOR: Nicholas T. Basta
Professor of Soil and Environmental Science
410C Kottman Hall, 292-6282, basta.4@osu.edu

INSTRUCTOR ASSISTANT: Henry Peller, peller.10@buckeyemail.osu.edu

COURSE DESCRIPTION: 3 semester hr. An overview of contaminant sources, transport through soil and water, and of environmental fate and impact of contaminants to human and ecosystem receptors. Topics include assessment and remediation of soil and water contaminants.

PREREQUISITES: Chem 1110 or Chem 1210 or graduate student standing

COURSE OBJECTIVES: After completion of this course:
You should have an understanding of:
1. sources of major environmental pollutants,
2. the relationship between environmental processes and contaminant transport and exposure,
3. pollutant transport through human and ecosystem pathways
4. approaches used to prevent or remediate environmental contamination

TEXTBOOKS: Recommended but not required
Environmental and Pollution Science. 2nd edition. 2006. Ian L. Pepper, Charles P. Gerba, and Mark L. Brusseau. ISBN 0-12-551503-0. Academic Press.
Chemical Fate and Transport in the Environment. 3rd edition. 2015. Harold F. Hemond and Elizabeth J. Fechner. ISBN 978-0-12-398256-8. Elsevier.
Environmental Chemistry, 10th edition. 2017. Stanley E. Manahan. CRC Press, Boca Raton FL

CLASS NOTES:
Class notes will be posted as pdf files on-line

EXAMINATIONS AND GRADING
exams, problem sets, attendance

	% OF GRADE
2 exams @ 20 each	40
Final Examination	30
Problem sets	10
topical briefs	20

Grading A 90-100; B 80-89; C 70-79; D 60-69; F < 60.
Plus/minus grading applied to overlap ranges.

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DISABILITY STATEMENT

Students with disabilities who need accommodations should see Dr. Basta during office or contact him by telephone (614-292-6282) or e-mail (basta.4@osu.edu) to make arrangements. Special needs must be discussed and arrangements made well in advance (preferably before the first week of class) of when arrangements to accommodate specific needs are required. Special accommodations may be arranged through the OSU Office of Disability Service, 150 Pomerene Hall, 1760 Neil Ave., Telephone 614-292-3307, http://slds.osu.edu/

TOPICS COVERED:

Fundamental concepts: environmental chemistry constants, overview of contaminant fate and transport processes; environmental impact and contaminant risk; atmospheric pollution concepts, natural water pollution concepts.

Application to specific topics:

Nutrient transport from agricultural land
Toxic organic substances
Fluorinated contaminants including PFOA/PFOS
Pharmaceutical (human and vet) and personal care products
Radioactive contamination
Unconventional gas extraction
Trace elements / toxic heavy metals, old and new issues (i.e., e-waste)
Sustainability: municipal and industrial byproduct reuse and contaminant transport issues

Computer and Tablet Use Policy

Open computers and surfing distracts other students and is unprofessional. However, computers / tablets for class notes is acceptable **BUT** you should sit in the back two rows of the classroom to minimize distraction. NO computers /tablet or phone use permitted during exams.