

# **Course Changes**





SCSC 618 Analysis of Environmental Systems  
Heep 124 and Laboratories Heep 621, Heep 608, Agronomy Field Lab  
Lectures: Mondays 9 am – 10:15 am  
Labs: Mondays and Wednesdays 10:30 am – 12:30 pm

## Course Description and Prerequisites

Course will introduce classical and contemporary methods for analyzing chemical components of environmental systems including soil, water, plants and gases. Theory of environmental chemistry is coupled with experiential learning in the field and laboratory.

### Prerequisites:

Graduate Classification

### Goals of Course:

- To acquaint students with the basic principles of standard methods for the analysis of elements and compounds in surface water, soil extracts, soil solution, gaseous matrices and vegetation using analytical instruments.
- To introduce QA/QC (Quality Assessment/Quality Control)

### Learning Objectives:

- Gain first-hand experience in some of the analytical techniques used in water, soil, plant and water analysis.
- Gain experience of dealing with various analytical hardware and software.
- Learn the importance of QA/QC, Standard curves, NIST traceable standards, check standards and sample replicates.
- Learn how to choose the best analytical method to test hypotheses.

### Course Structure:

The course will consist of 1 lecture and 2 labs a week. There will be three modules to the course and each module will be led by Dr. Aitkenhead-Peterson, Dr. Senseman or Dr. Murray. There will be laboratory write-ups and/or homework assignments and/or project reports for continual assessment and a final exam. The final exam will be a take home exam comprising questions posed and graded by Dr. Aitkenhead-Peterson or Dr. Senseman.

### Instructors and Modules

**Module 1 (Monday 26<sup>th</sup> August and Wednesday 28<sup>th</sup> August 2013 then Monday 23<sup>rd</sup> September to**

**Wednesday 23<sup>th</sup> October 2013) 10 labs + 5 lectures + 3 Field Trips**

Dr. Jacqueline A. Aitkenhead-Peterson  
621 Heep Center  
Email: [jpeterson@ag.tamu.edu](mailto:jpeterson@ag.tamu.edu)  
Phone: 5-3682

**Grading: 40% of course**

- Laboratory Report (Introduction, Materials and Methods, Statistical Analysis, Results and Discussion) - 30%
- Final Exam (Take Home) – 10%

**Module 2 (Monday 2<sup>nd</sup> September to Wednesday 18<sup>th</sup> September 2013) 6 labs + 3 lectures**

Dr. Seth Murray  
Agronomy Field Lab  
Email: [sethmurray@tamu.edu](mailto:sethmurray@tamu.edu)  
Phone: 5-3469

**Grading 20% of course**

R Homework – 10%

NIRS Homework – 10%

**Module 3 (Monday 28<sup>th</sup> October to Wednesday 20<sup>th</sup> November 2013: 7 Labs + 4 lectures**

Professor Scott Senseman  
6<sup>th</sup> Floor Lab, Heep Center  
Email: [s-senseman@tamu.edu](mailto:s-senseman@tamu.edu)  
Phone: 5-5375

**Grading 40% of course**

Written Abstract 20%

Final Exam (Take Home) 20%

**Field Trips:**

1. Soil and Water Sample Collections
2. OI Laboratories, Research Park or GERG Labs
3. State Chemists Facility

**Text:**

On some occasions, certain papers will be selected for discussion in class. Papers, protocols, standard methods, lecture notes and presentations will be available on E-Learning which will be available to you

when you register for the class.

Grading:

Module 1: 40%

Module 2: 20%

Module 3: 40%

Grades:

90 – 100 = A

80 – 89 = B

70 – 79 = C

60 – 69 = D

< 60 = F

Field trips/laboratories:

Mod	Prof	Day	Date	Room	Lecture	Laboratory
1	Peterson	Mon	8/26/2013	Heep 124 Labs	Introduction to Course Experimental Design & setting up hypotheses	Tour of Laboratories
1	Peterson	Weds	8/28/2013	Heep 621		Field Sampling
2	Murray	Mon	9/2/2013	Heep 124 Agro Lab	Introduction to R software. Basic commands in R	Introduction to R software. Basic commands in R
2	Murray	Weds	9/4/2013	Agro Lab		Statistical Analysis in R
2	Murray	Mon	9/9/2013	Heep 124 Agro Lab	Near Infrared Spectroscopy (NIRS)	NIR for tissue analysis
2	Murray	Weds	9/11/2011	Agro Lab		DNA extraction and PCR
2	Murray	Mon	9/16/2013	Heep 124 Agro Lab	DNA extraction and molecular markers	DNA extraction and PCR
2	Murray	Weds	9/18/2013	Agro Lab		Graphing with R
1	Peterson	Mon	9/23/2013	Heep 124 Heep 621	Sub-sampling and Soil Extracts	Soil extractions pH and EC
1	Peterson	Weds	9/25/2013	Heep 621		Soil extractions

						pH and EC
1	Peterson	Mon	9/30/2013	Heep 124 Heep 621	No Lecture – straight to Lab	Analysis of NH <sub>4</sub> -N and NO <sub>3</sub> -N
1	Peterson	Weds	10/2/2013	Heep 621		Analysis of PO <sub>4</sub> -P and Alkalinity
1	Peterson	Mon	10/7/2013	Heep 124 Heep 621	Colorimetric Analysis Ion Chromatography	Analysis of base cations
1	Peterson	Weds	10/9/2013	Heep 621		Analysis of C and N
1		Mon	10/14/2013	Heep 124 Heep 621	Combustion vs Persulfate Digestion & Kjeldahl N	QAQC of data
1	Peterson	Weds	10/16/2013	Heep 621		SPSS for statistical analysis
1	Peterson	Mon	10/21/2013	Heep 124 Heep 621	NIR spectroscopy	NIR spectroscopy for Extract analysis
1	Peterson	Weds	10/23/2013	Heep 621		Stats and Report Writing
3	Senseman	Mon	10/28/2013	Heep 124 Heep 608	Chromatography	Sample Prep and Analysis
3	Senseman	Weds	10/30/2013	Heep 608		Gas Chromatography
3	Senseman	Mon	11/4/2013	Heep 124 Heep 608	Gas Chromatography	Gas Chromatography
3	Senseman	Weds	11/6/2013	Heep 608		Liquid Chromatography
3	Senseman	Mon	11/11/2013	Heep 124 Heep 608	Liquid Chromatography	Liquid Chromatography
3	Senseman	Weds	11/13/2013	Heep 608		Liquid scintillation
3	Senseman	Mon	11/18/2013	Heep 124 Heep 608	Liquid Scintillation	Liquid scintillation
0		Weds	11/20/2013	Heep 124 Field	Evaluation and Discussion	Field Trip GERG
1	Peterson	Mon	11/25/2013	Field		Field Trip State Chemist Office
1	Peterson	Weds	11/27/2013	No class	Thanksgiving	
		Mon	12/2/2013	No Class	Redefined Day	Take Friday Classes

MAKE-UP POLICY: Completion of assignments and participation in all activities of the class are the responsibility of the student. Therefore, it is the responsibility of the student to present a valid reason, such as a signed medical excuse from a doctor, to be given consideration in the assessment of timeliness and submission of assignments. Assignments not returned will be given a grade of zero. Consideration in the assessment of timeliness and submission of assignments is subject to University Rules for Excused Absences."

#### Americans with Disabilities Act (ADA) Policy Statement

The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information. The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Cain Hall, Room B118, call 845-1637 or visit: <http://disability.tamu.edu>.

#### Aggie Honor Code

"An Aggie does not lie, cheat, or steal or tolerate those who do."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M University community from the requirements or the processes of the Honor System. For additional information please visit: <http://www.tamu.edu/aggiehonor/>.

#### Excused Absences

7.1 The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence. Among the reasons absences are considered excused by the university are the following:

7.1.6 Injury or illness that is too severe or contagious for the student to attend class.

7.1.6.1 Injury or illness of three or more days. For injury or illness that requires a student to be absent from classes for three or more university business days (to include classes on Saturday), the student should obtain a medical confirmation note from his or her medical provider. The Student Health Center or an off-campus medical professional can provide a medical confirmation note only if medical professionals are involved in the medical care of the student. The medical confirmation note must contain the date and time of the illness and medical professional's confirmation of needed absence.

7.1.6.2 Injury or illness less than three days. Faculty members may require confirmation of student injury or illness that is serious enough for a student to be absent from class for a period less than three university business days (to include classes on Saturday). At the discretion of the faculty member and/or academic department standard, as outlined in the course syllabus, illness confirmation may be obtained by one or both of the following methods:

a. Texas A&M University Explanatory Statement for Absence from Class form available at <http://attendance.tamu.edu>

b. Confirmation of visit to a health care professional affirming date and time of visit.

7.1.6.3 An absence for a non acute medical service does not constitute an excused absence.

To view all Student Rules, please go to: <http://student-rules.tamu.edu/>

To view Rule 7 of the Student Rules please go to: <http://student-rules.tamu.edu/rule7.htm>

On all course work, assignments, and examinations at Texas A&M University, the following Honor Pledge shall be preprinted and signed by the student:

“On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work.”

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