

Fall 2018

EVSC 612-101: Environmental Analysis

Pradyot Patnaik

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Chemistry: *Fall 2018 Course Syllabus*

NJIT Academic Integrity Code: All students should be aware that the Department of Chemistry & Environmental Science (CES) takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: Environmental Analysis EVSC 484 and 612 courses are designed to acquaint students to identify and quantitatively measure pollutants at trace levels of concentrations in environmental matrices including, waters, soils, sediments and air. These courses include a wide range of topics such as, the errors and statistics in microanalysis, instrumentations used to measure organic and inorganic pollutants, techniques applied for authentic identification of pollutants and their quantifications, and their extractions from sample matrices and purifications. Also the topics would involve in-depth discussions on the concepts, chemistry and techniques applied in such trace chemical analysis. There will be labs in which students will be exposed to using instrumentations and techniques in such measurements.

Prerequisites: Students must have an in-depth understanding of general chemistry.

Course-Section and Instructors

Course-Section	Instructor
Environmental Analysis CRN 92801/92827 - EVSC 484/612	Prof. Pradyot Patnaik

Office Hours for All Chemistry & Environmental Science Instructors: [Fall 2018 Office Hours and Emails](#)

Required Textbook:

Title	Environmental Chemical Analysis
Author	Somenath Mitra, Pradyot Patnaik and Barbara B. Kebbekus
Edition	2nd Edition, 2018
Publisher	CRC Press
ISBN#	978-0-8493-3838-0 (paperback)

University-wide Withdrawal Date: The last day to withdraw with is Monday, November 12, 2018. It will be strictly enforced.

POLICIES

All CES students must familiarize themselves with, and adhere to, all official university-wide student policies. CES takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Exam 1	100 points
Exam 2	100 points
Lab Experiments and Reports	50 points

Your final letter grade in this course will be based on the following tentative curve:

A	90 % and above	C	50 to 59 %
B+	80 to 89 %	D	40 to 49 %
B	70 to 79 %	F	Below 40 %
C+	60 to 69 %		

Attendance policy: Attendance at classes will be recorded and is **mandatory**. Each class is a learning experience that cannot be replicated through simply “getting the notes.”

Homework Policy: Homework is an expectation of the course. The home work problems set by the instructor are to be handed in for grading and will be used in the determination of the final letter grade as described above.

Exams: There will be three exams during the semester. The following exam periods are tentative and therefore possibly subject to change:

Exam 1	Mid-October, 2018
Exam 2	Mid-December, 2018
Labs	November - December, 2018

Make-up Exam Policy: There will normally be **NO MAKE-UP EXAMS** during the semester. In the event that a student has a legitimate reason for missing a quiz or exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor’s note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the CES Department Office/Instructor that the exam will be missed so that appropriate steps can be taken to make up the grade.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all classtimes. Such devices must be stowed in bags during exams or quizzes.

ADDITIONAL RESOURCES

Chemistry Tutoring Center: Located in the Central King Building, Lower Level, Rm.G12. Hours of operation are Monday - Friday 10:00 am -6:00 pm. For further information please click [here](#).

Accommodation of Disabilities: Office of Accessibility Resources and Services (*formerly known as Disability Support Services*) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director at the Office of Accessibility Resources and Services at 973-596-417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Office of Accessibility Resources Services office authorizing your accommodations will be required.

For further information regarding self-identification, the submission of medical documentation and additional support service provided please visit the Accessibility Resources and Services(OARS) website at:

- <http://www5.njit.edu/studentuccess/disability-support-services/>

Important Dates (See: [Fall 2018 Academic Calendar, Registrar](#))

Date	Day	Event
September 4,2018	T	First Day of Classes
September 10,2018	M	Last Day to Add/Drop Classes
November 12,2018	M	Last Day to Withdraw
November 20,2018	T	Thursday Classes Meet
November 21,2018	W	Friday Classes Meet
November 22-25,2018	R-Su	Thanksgiving Break-University Closed
December 12,2018	W	Last Day of Classes
December 14,2018	F	Reading Day
December 15-21,2018	F-R	Final Exam Period

Course Outline

Lecture	Section	Topic	Assignment
1		Pollutants in the environment, classifications, sources	
2		Errors in analyses, precision and accuracy and statistics	
3		Wet methods: spectroscopic and titrimetric methods	
4		Gas chromatography: columns, detectors and concepts	
5		Liquid chromatography and ion chromatography	
6		Sample extraction techniques, removal of interference	
7		Atomic spectroscopy: flame and furnace atomic absorption	
8		Air analysis ; EXAM 1	
9		Mass spectrometry, concepts, identifying compounds	

10		Lab: Analysis of inorganic anion by spectrophotometry	
11		Lab: pH, conductivity and titration	
12		Lab: GC analysis and extractions of organic pollutants	
13		Lab: HPLC and GC/MS analysis demonstration	
14		Lab: Metal analysis by atomic spectroscopy: course review	
15		EXAM 2	
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Department of Chemistry & Environmental Sciences
Course Syllabus, Fall 2018
