

## ENVE 496 Fundamentals of Water and Wastewater Analysis

Fall 2012

(3 units)

Engineering (E) Room 300

Tuesday and Thursday, 8:00-9:15 am

**Instructor:** Dr. Tyler Radniecki

**Phone:** (619) 594-0113

**Office:** Engineering Room 421 F

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**Office Hours:** Tuesday 3:00-5:30 pm, Thursday 3:00-5:30 pm or by appointment.

**Contact Policy:** The preferred method of contacting your instructor is by visiting during the stated office hours or e-mail. If neither option is available, a phone call is acceptable.

When e-mailing, be sure the following items are included:

- 1) "ENVE 496" should be in the Subject line to avoid my marking it as spam and deleting it.
- 2) Respectfully address the recipient as Dr./Professor/Mr./Ms./Mrs. Last Name.
- 3) Briefly but clearly describe your comment/question/concern (less is more!).
- 4) Sign both your first and last names (especially important if using a non-SDSU e-mail address (*e.g.* Gmail)).

When leaving a voice mail, be sure the following items are included:

- 1) Respectfully address the recipient as Dr./Professor/Mr./Ms./Mrs. Last Name.
- 2) Clearly and slowly state your full name and phone number.
- 3) Mention that you are in ENVE 496.
- 4) Briefly but clearly describe your comment/question/concern (less is more!).
- 5) Repeat again your full name and phone number.

**Course Overview and Description:** Causes and effects of environmental problems and engineering methods to control them. This course is an overview of the major themes currently running through the field of environmental engineering. Major themes covered include the effect

of human population growth and increased urbanization on the environment, energy consumption and production, water supply and treatment, air pollution and global climate change.

**Prerequisites:** Chemistry 130, Chemistry 200/ 202 and Environmental Engineering 355

### **Student Learning Outcomes:**

- Outcome 5: Design an environmental experiment to meet a need, conduct the experiment, and analyze the resulting data.
- Outcome 6: Solve well-defined engineering problems related to environmental engineering.
- Outcome 8: Organize and deliver effective verbal, written and graphical communications.

**Course Textbook:** *Chemistry for Environmental Engineering and Science*, 5<sup>th</sup> Edition, by C.N. Sawyer, P.L. McCarty and G.F. Parkin, McGraw Hill, 2003, ISBN 0-07-248066-1

### **Course Requirements:**

#### Attendance policy:

Attendance is highly encouraged but not required. However, materials outside of the course textbook will be used and while they will be distributed via Blackboard, their **context may be difficult to ascertain** without being in class. Additionally, student notes will be distributed via Blackboard but **may be missing key components** (*e.g.* equations, figures, *etc.*) that are meant to be filled in by the students during class.

#### Coursework:

Coursework will consist of weekly homework assignments, 2 mid-terms and 1 final exam. All homework assignments will be **due 1 week from their assignment** and should be handed in during class. However, homework assignments can be turned in at my office up until 5pm on the day that they are due. **Late homework will not be**

## ENVE 496 Syllabus

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**accepted.** If you are unable to turn in your homework on the date that it is due, please either **turn the homework in early** (at my office) or **contact me in advance** to arrange another time to turn the homework in. Both mid-terms and the final exam will be closed book and closed notes unless otherwise indicated.

### Student expectations:

In this course, you are expected to contribute to a positive learning environment by a) being on time to class, b) remaining in class until the session formally ends, c) turning cell phones off or to vibrate, and d) treating one another and the instructor with both courtesy and respect.

Further, students are expected to exhibit academic conduct that reflects the highest levels of honesty and integrity. You'll want to conduct yourself in a manner or way that fully reflects the SDSU Statement of Student Rights and Responsibilities. Please note that Student Disciplinary Procedures for The California State University specifically prohibit cheating or plagiarism and provide that such acts may result in expulsion, suspension, probation, or some other sanction deemed appropriate (more detail below).

### Grading policy:

Final grades will be based on the results of the homework assignments, mid-term and final exam as indicated below:

<u>Course Work</u>	<u>Percent of final grade</u>
Homework	30%
Mid-term Exam	30%
Final Exam	40%

The **Mid-term** will cover all material presented from the beginning of the class through “Colloidal Chemistry Concepts” (Week 8). The **Final Exam** will focus most heavily on

## ENVE 496 Syllabus

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all material present from “Statistical Analysis of Analytical Data” (Week 8) though “Solids, Volatile Acids and Nutrients” (Week 15) but will also include any and all material that has been covered throughout the semester.

**NOTE:** Extra credit points worth up to 3% of the final grade may be assigned throughout the semester as opportunities arise. Not participating in these activities will not harm the student’s grade as the extra credit will not be applied until after the final curve for the course has been set.

### Make-up Exams:

Make-up exams for **Mid-terms 1 and 2** will only be given for students with a **legitimate reason** (*i.e.* school sanctioned or religious event) **and** that contact the instructor **before** the day of the exam (sooner is better!). Non-legitimate reasons include work, doctor appointments, sleeping, surfing, etc. It is the responsibility of the student to arrange his/her schedule to accommodate for the exams.

If a student misses a mid-term exam due to serious illness or family emergency, a make-up exam will be given upon **verification** of the illness/emergency (doctor’s note, family confirmation, *etc.*).

Make-up mid-terms will consist of an alternative exam given at a time and location to be determined by the instructor and student.

Per San Diego State University Policy regarding make-up **Final Exams**: “***No final examination shall be given to individual students before the regular time. Any student who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.***” ([http://arweb.sdsu.edu/es/registrar/finalexams/11\\_fall.html](http://arweb.sdsu.edu/es/registrar/finalexams/11_fall.html))

**Statement on Cheating and Plagiarism:** “Statement on Cheating and Plagiarism: Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one’s grad or obtaining course credit’ such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition

## ENVE 496 Syllabus

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that the term ‘cheating’ not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one’s own work. **Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the University.** For more information on the University’s policy regarding cheating and plagiarism, refer to the Schedule of Courses (‘Legal Notices on Cheating and Plagiarism’) or the University Catalog (‘Policies and Regulations’).

**Students with Disabilities:** “Americans with Disabilities Act (ADA) Accommodation: The University is committed to providing reasonable academic accommodation to students with disabilities. The Student Disability Services Office provides university academic support services and specialized assistance to students with disabilities. Individuals with physical, perceptual, or learning disabilities as addressed by the American’s with Disabilities Act should contact Student Disability Services for information regarding accommodations. Please notify your instructor so that reasonable efforts can be made to accommodate you. If you expect accommodation through the Act, contact the Student Disability Services Office ([http://www.sa.sdsu.edu/dss/dss\\_home.html](http://www.sa.sdsu.edu/dss/dss_home.html)) at (619) 594-6473.”

**Religious Observances:** “University Policy on Absence for Religious Observances includes the following statements: “By the end of the **second** week of classes, students should notify the instructors of affected courses of planned absences for religious observances. Instructors shall reasonably accommodate students **who notify them in advance** of planned absences for religious observances.” Please notify the instructor in a timely manner and a reasonable accommodation will be reached.

**Syllabus is Subject to Change:** This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

## Course Schedule\*

<u>Week</u>	<u>Dates</u>	<u>Topic</u>
1	Aug. 28 <sup>th</sup> and 30 <sup>th</sup>	Course Introduction/General Chemistry Concepts
2	Sept. 4 <sup>th</sup> and 6 <sup>th</sup>	Physical Chemistry Concepts
3	Sept. 11 <sup>th</sup> and 12 <sup>th</sup>	Equilibrium Chemistry Concepts
4	Sept. 18 <sup>th</sup> and 20 <sup>th</sup>	Equilibrium Chemistry Concepts
5	Sept. 25 <sup>th</sup> and 27 <sup>th</sup>	Organic Chemistry Concepts
6	Oct. 2 <sup>nd</sup> and 4 <sup>th</sup>	Organic Chemistry/Biochemistry Concepts
7	Oct. 9 <sup>th</sup> and 11 <sup>th</sup>	Biochemistry/Colloidal Chemistry Concepts
8	Oct. 16 <sup>th</sup>	Colloidal Chemistry Concepts
	Oct. 18 <sup>th</sup>	Statistical Analysis of Analytical Data
9	Oct. 23 <sup>th</sup>	Statistical Analysis of Analytical Data
	Oct. 25 <sup>th</sup>	Quantitative Chemistry Concepts
10	<b>Oct. 30<sup>th</sup></b>	<b>Mid-Term Exam</b>
	Nov. 2 <sup>nd</sup>	Quantitative Chemistry Concepts
11	Nov. 6 <sup>th</sup> and 8 <sup>th</sup>	Instrumental Methods of Analysis
12	Nov. 13 <sup>th</sup>	Turbidity, Color and pH
	Nov. 15 <sup>th</sup>	Alkalinity and Hardness
13	Nov. 20 <sup>th</sup>	Residual Chlorine and Chlorides
	Nov. 22 <sup>nd</sup>	Thanksgiving – No Class
14	Nov. 27 <sup>th</sup> and 29 <sup>th</sup>	Biological and Chemical Oxygen Demand
15	Dec. 4 <sup>th</sup> and 6 <sup>th</sup>	Solids, Volatile Acids and Nutrients
16	Dec. 11 <sup>th</sup>	Final Exam Review Session (TBA)
	<b>Dec. 13<sup>th</sup></b>	<b>Final Exam (E 300, 8:00 am – 10:00 am)</b>

**\*Course schedule subject to change as the instructor deems necessary to ensure that the student body, as a whole, is given the best chance to learn the material. Additional time may be needed for difficult concepts.**