

# 2012-2013 SHORT SIGNATURE SHEET



UNC CHARLOTTE

Date: November 25, 2013

Subject: Establish a New Course CEGR4242 Wastewater Treatment Design

Originating Department: Civil & Environmental Engineering

TYPE OF PROPOSAL: UNDERGRADUATE X GRADUATE \_\_\_\_\_ UNDERGRADUATE & GRADUATE \_\_\_\_\_  
 (Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE FORWARDED	COMMENTS: APPROVED, APPROVED WITH REVISIONS, ETC.	SIGNATURES
			<u>PERSON ORIGINATING PROPOSAL</u> Martin R. Kane <i>Martin R. Kane</i> 11/27/13
		Approved	<u>DEPARTMENT CHAIR</u> John Daniels <i>John Daniels</i> 12/4/13
4-Dec 2013	11-Dec 2013	Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u> <i>Wesley Williams</i> [print name here:] Wesley Williams
	12/15/13	Approved	<u>COLLEGE DEAN</u> <i>[Signature]</i> [print name here:]
		Approved	<u>GENERAL EDUCATION</u> (if applicable; for General Education courses only) [print name here:]
		Approved	<u>UNDERGRADUATE COURSE &amp; CURRICULUM COMMITTEE CHAIR</u> (for undergraduate courses only)
		Approved	<u>GRADUATE COUNCIL CHAIR</u> (for graduate courses only)
			<u>FACULTY GOVERNANCE ASSISTANT</u> (received and processed in Academic Affairs)



# UNC CHARLOTTE

## SHORT FORM COURSE AND CURRICULUM PROPOSAL

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**\*To:** Undergraduate Course and Curriculum Committee Chair

**From:** Department of Civil & Environmental Engineering (CEE)

**Date:** November 25, 2013

**Re:** Proposal for New Course: CEGR4242-Wastewater Treatment Design

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The Short Form is used for minor curriculum changes. Minor changes may include:

- Changes to course numbering (note: must follow Course Numbering Policy)
- Editorial changes to current catalog copy
- Individual new courses (undergraduate only)
- Other small changes that have limited to no impact on other departments or units

Submission of this Short Form indicates review and assessment of the proposed curriculum changes at the department and collegiate level either separately or as part of ongoing assessment efforts.

\*Proposals for undergraduate courses should be sent to the Undergraduate Course and Curriculum Committee Chair. Proposals related to both undergraduate and graduate courses, (e.g., courses co-listed at both levels) must be sent to both the Undergraduate Course and Curriculum Committee and the Graduate Council.

**SUMMARY:** State clearly and concisely the proposed changes. Please give a brief statement as to why the change is being proposed.

The CEE Department proposes to add an elective course, CEGR 4242, to its undergraduate curriculum leading to the BSCE degree. This course has been taught for several semesters as a "topics" course (CEGR 4090). It has been well-received by students and well-regarded by the faculty. A review by the CEE Curriculum Committee resulted in a strong recommendation that this course be offered as a permanent elective in the undergraduate curriculum, and the CEE Faculty agreed. Therefore, a permanent course number and a permanent catalogue description are requested.

**FOR CONSULTATION WITH OTHER DEPARTMENTS:**

1. Does the proposed change affect other departments (including additions and/or changes to degree requirements or prerequisites offered in other departments)?

\_\_\_\_\_ Yes     No

2. If Yes, please list the other departments affected by the proposed change:

3. Have you consulted with each department listed in item 2 regarding the proposed change?

\_\_\_\_\_ Yes    \_\_\_\_\_ No

Result(s) of Consultation(s) (please attach documentation):

For a new course or for major modification of an existing course, include Consultation on Library Holdings.

**RESOURCES:**

1. For a new course or revisions to an existing course, check all the statements that apply:

\_\_\_\_\_ This course will be cross listed with another course.

There are prerequisites for this course.

\_\_\_\_\_ There are co-requisites for this course.

\_\_\_\_\_ This course is repeatable for credit.

\_\_\_\_\_ This course will affect the number of credits hours for its program.

\_\_\_\_\_ This proposal results in the deletion of an existing course(s) from the degree program and/or catalog.

\_\_\_\_\_ This proposal will alter and agreement with a North Carolina community college.

For all items checked above, applicable statements and content must be reflected in the proposed catalog copy.

2. Indicate the additional resources required, if any, to implement and maintain the proposed change.

Wastewater modeling software Biowin. The University currently holds the license to the software.

**CREDIT HOUR:** Review statement and check if applicable

X The appropriate faculty committee has reviewed the course outline/syllabus and has determined that the assignments are sufficient to meet the University definition of a credit hour.

**PROPOSED CATALOG COPY:** CEGR 4242. Wastewater Treatment Design. (3) Prerequisite: CEGR 3141 or consent of CEE department. Analysis and design of wastewater treatment processes. Regulatory requirements, water quality testing, pretreatment, primary treatment, biological processes, nutrient removal, disinfection and tertiary/advanced processes. (On Demand)

**ACADEMIC PLAN OF STUDY:** If the proposed change will impact an existing Academic Plan of Study, provide updated Academic Plan of Study in template format.

**STUDENT LEARNING OUTCOMES:** If applicable, please indicate what SLOs are supported by this course or whether this curricular change requires a change in SLOs or assessment for the degree program. N/A

**TEXTBOOK COSTS:** It is the policy of the Board of Governors to reduce textbook costs for students whenever possible. Have electronic textbooks, textbook rentals, or the buyback program been considered and adopted?  
Yes.

**IMPORTANT NOTE:** A Microsoft Word version of the final course and curriculum proposal should be sent to [facultygovernance@uncc.edu](mailto:facultygovernance@uncc.edu) upon approval by the Undergraduate Course and Curriculum Committee and/or Graduate Council chair.



J. Murrey Atkins Library

Consultation on Library Holdings

To: Martin Kane  
From: Alison Bradley  
Date: 11/27/13  
Subject: CEGR 4090/5090 Wastewater Treatment Plant Design

Summary of Librarian's Evaluation of Holdings:

Evaluator: Alison Bradley Date: 11/27/13

Check One:

- 1. Holdings are superior \_\_\_\_\_
- 2. Holdings are adequate   x
- 3. Holdings are adequate only if Dept. purchases additional items. \_\_\_\_\_
- 4. Holdings are inadequate \_\_\_\_\_

Comments:

Library holdings should be adequate to support student research for this course (see list of items held by subject heading below). Students will have access to relevant databases including Compendex, ASTM Digital Library, Environment Complete, Environmental Sciences and Pollution Management, and many others.

LC Subject Heading	Books	Journals
Sewerage	1637	23
Water reuse	209	2
Water Purification	781	16
Water quality management	1312	112

*Alison Bradley*

\_\_\_\_\_  
Evaluator's Signature

11/27/13

\_\_\_\_\_  
Date

## CEGR 4090/5090 Wastewater Treatment Plant Design

**Lectures:** Tuesdays and Thursdays 11:00 a.m. -12:15 p.m. EPIC 3226

**Instructor:** Dr. Olya Keen  
Office hours: Tuesdays and Thursdays 2:00-4:00 p.m., EPIC 3171  
Contact: [okeen@uncc.edu](mailto:okeen@uncc.edu); 704-687-5048  
<http://coefs.uncc.edu/okeen/>

**Textbook:** Wastewater Engineering, Treatment and Reuse, Metcalf&Eddy, 4<sup>th</sup> ed.  
ISBN-13: 9780070418783

### Topics to be covered:

- 1) Basics and terminology
- 2) Regulations: past, present, future
- 3) Wastewater constituents and measurements (HW 1-2)
- 4) Overview of mass balances, process design and reaction kinetics (HW 3)
- 5) Pretreatment processes (HW 4)

Exam 1 (covers Topics 1-5)

- 6) Biological treatment
  - a. Suspended growth modeling and aerobic treatment (HW 5)
  - b. Suspended growth with nitrification (HW 6)
  - c. Biological nutrient removal (HW 7)

Exam 2 (Covers Topic 6 a-b)

- 7) Solids processing
- 8) Disinfection (HW 8, topics 7-8)

Exam 3 (Covers Topics 6c, 7-8)

- 9) BioWin wastewater modeling software
- 10) Advanced treatment processes and water reuse

Treatment plant team design presentations as a final exam

### Important dates (any changes will be announced in advance):

Exam 1      September 26<sup>th</sup>, Thursday, in class  
Exam 2      October 24<sup>st</sup>, Thursday, in class  
Exam 3      November 21<sup>st</sup>, Thursday, in class  
Final exam    December 10<sup>th</sup>, Tuesday, 11-1:30 (set by the University)  
No class      October 17<sup>th</sup> (Fall Break), November 28<sup>th</sup> (Thanksgiving)

### Grading:

The overall grade will not be curved, although grades for individual assignments might.

A:    90.0-100%  
B:    80.0-89.9%  
C:    70.0-79.9%  
D:    60.0-69.9%  
F:    < 60.0%

**Grade distribution:**

Item	Undergraduate	Graduate
Homework (10 sets)	35%	35%
Exam 1	10%	10%
Exam 2	10%	10%
Exam 3	10%	10%
Field trip report	5%	5%
Treatment plant design report and presentation	15%	10%
Wastewater relevant research topic report	N/A	10%
Final	15%	10%

**Attendance:**

Attendance is not mandatory in this class and will not be checked. However, it is in your best interests to attend. I use blackboard for teaching, so you would have to count on your friends to take good notes or learn the material on your own, if you choose to skip classes.

**Homework:**

There will be 10 sets of homework, each covering a topic or a set of topics. The homework will be disbursed at the beginning of the new topic and will be due a week from the distribution date (e.g. if it was distributed at the beginning of class Tuesday Sept 3<sup>rd</sup>, it will be due at the beginning of class Tuesday Sept 10<sup>th</sup>). Each set is worth 3.5% of the grade. Late homework is penalized 20% of the grade and will only be accepted with a documentable reason until the graded homework is returned. Graduate students will have additional, more in-depth and often qualitative questions on each homework. Students may discuss the homework with each other, but each student must perform his/her own calculations individually. Copying someone else's work will be considered cheating.

**Exams:**

Exams will consist of multiple choice, short answer and quantitative problems. A review session will precede each exam. Final exam is cumulative. Exams will be in-class.

**Field trip:**

Once we cover all the major topics, we will make a trip to a wastewater treatment plant to see full-size processes. A questionnaire will be distributed prior to the visit. After the visit, everyone will submit the 1-page (single-space) questionnaire/report on the field trip. I will do my best to set the time that is convenient for everyone.

**Group work and design presentation:**

Group work is part of life, so it will be part of the class as well. I will do my best to make it as painless and conflict-free as possible. I would like each group to have at least 1 grad student in for leadership and guidance. Each group will consist of 3-4 people so the responsibilities can be split. The team members will evaluate the contribution by the other team members, so people who do not carry their part of the load will receive lower grade. For the project, you will design a wastewater treatment plant/process given water quality parameters, flow rate and regulatory constraints. The deliverables are a technical report and an in-class 30 min presentation with 5 min for questions. Good technical questions to opposing teams will be expected and will be

factored into the grade. The guidelines for the report will be distributed with the project announcement later in the semester.

**Research report:**

Graduate students will have an additional deliverable in this class. They will be required to write a 4-6 page report (single space) on a wastewater relevant topic of their choosing. The topic will need to be approved by me. It may be relevant to your research but cannot match it exactly. The report will be due Tuesday of the last week of class, but can be turned in earlier.

**Student Conduct & Academic Integrity Policy:**

You are expected to attend all lectures and will be responsible for all material presented in class. You are encouraged to work together and discuss homework problems. However, copying another student's work, solutions manual or information from references, internet sources or other information is strictly forbidden and will constitute a violation of the UNC Charlotte Code of Student Academic Integrity.

Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty they become aware of to the instructor who is responsible for dealing with them. Students have the responsibility to know and observe the requirements of the UNCC Code of Student Academic Integrity which is available from the Dean of Students Office or online at: <http://legal.uncc.edu/policies/up-407>. This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonestly. Faculty may ask students to produce identification at examinations and may require students to demonstrate that graded assignments completed outside of class are their own work. ***All acts of academic dishonesty will be reported to the Dean of Students Office and the settlement procedure outlined in the Code will be initiated. First offenses will result in a formal warning, an F on the assignment, and at least one letter grade reduction in the final course grade (after the failed assignment has been factored in) based on the nature of the offense.*** Whatever the penalty, a form that has been signed by both the student and the instructor recording the settlement will be kept for eight years in the Office of the Dean of Students.