

**Clackamas Community College**

## Online Course/Outline Submission System

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**Section #1 General Course Information****Department:**Engineering Science**Submitter**First Name: **Jim**Last Name: **Nurmi**Phone: **3816**Email: **jamesn**

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**Course Prefix and Number:**WET - 134

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**# Credits:**3**Contact hours**Lecture (# of hours): **22**

Lec/lab (# of hours):

Lab (# of hours): 33

Total course hours: **55**

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

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**Course Title:**Environmental Chemistry II**Course Description:**

A lab course providing experience in test procedures required for wastewater treatment NPDES discharge permits and the drinking water industry.

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**Type of Course:**Career Technical Preparatory

Is this class challengeable?

**No**

Can this course be repeated for credit in a degree?

**No**

Is general education certification being sought at this time?

**No**

Does this course map to any general education outcome(s)?

**No**

Is this course part of an AAS or related certificate of completion?

**Yes**

**Name of degree(s) and/or certificate(s):**Water Quality AAS

Are there prerequisites to this course?

**Yes**

**Pre-reqs:**Pass WET-123

**Have you consulted with the appropriate chair if the pre-req is in another program?**

**No**

Are there corequisites to this course?

**No**

Are there any requirements or recommendations for students taken this course?

**No**

Are there similar courses existing in other programs or disciplines at CCC?

**No**

Will this class use library resources?

**No**

Is there any other potential impact on another department?

**No**

Does this course belong on the Related Instruction list?

**No**

**GRADING METHOD:**

A-F or Pass/No Pass

**Audit:Yes**

When do you plan to offer this course?

✓ **Spring**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

**No**

Will this course appear in the college catalog?

**Yes**

Will this course appear in the schedule?

**Yes**

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. perform typical water and wastewater laboratory procedures,
2. utilize a laboratory spectrophotometer to analyze selected ions in water or wastewater,
3. perform simple quality assurance procedures for each of the lab procedures performed,
4. describe the significance of selected water and wastewater tests, including an understanding of the importance of the test to water or wastewater treatment plant operators;
5. explain and perform pH, acidity, alkalinity, calcium carbonate saturation, specific conductance, hardness, Pb and Cu, Jar tests, and chlorine demand labs.

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***This course does not include assessable General Education outcomes.***

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Major Topic Outline:

1. Introduction to quality assurance in the laboratory.
2. Measuring dissolved oxygen and the BOD procedure.
3. Fundamentals of pH measurement and meter calibration.
4. Introduction of the use of a laboratory spectrophotometer.
5. Water hardness and the marble test.
6. Ammonia nitrogen by the nessler test method.
7. Specific conductance and the nitrate test method.
8. Chlorine demand of raw and finished water.
9. Digester alkalinity and volatile acid determination.
10. Suspended solids and total/volatile solids determination.

Does the content of this class relate to job skills in any of the following areas:

- |                                      |           |
|--------------------------------------|-----------|
| 1. Increased energy efficiency       | <b>No</b> |
| 2. Produce renewable energy          | <b>No</b> |
| 3. Prevent environmental degradation | <b>No</b> |
| 4. Clean up natural environment      | <b>No</b> |

5. Supports green services **No**

Percent of course:0%

First term to be offered:

**Next available term after approval**

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