COURSE DETAILS

Units of Credit: 6
Contact hours: 3 hours per week
Class: Wednesday, 9:00 – 12:00 Val 121, Valentine Annexe building H22
Workshop: Wednesday, 9:00 – 12:00 Lab 315, Civil Engineering building H20
Course Coordinator and Lecturer: Prof Richard Stuetz
email: r.stuetz@unsw.edu.au
Lecturer: Dr Nhat Le
email: minh@unsw.edu.au
Workshop: Dr James McDonald (Field work coordinator and laboratory demonstrator)
email: jamesmcdonald@unsw.edu.au
Guido Ortega (Laboratory demonstrator)
Kelvin Ong (Laboratory demonstrator)
Dr Gautam Chattopadhy (Laboratory manager)
email: gautam@unsw.edu.au

INFORMATION ABOUT THE COURSE

This course will address the presence and implications of impurities in water and wastewater. It will consider both chemical and microbial substances that may contaminate various types of waters. Specific attention will be devoted to analytical methods for the detection and monitoring of water and wastewater contaminants.

HANDBOOK DESCRIPTION

The effects of impurities in water and wastewater on its suitability for various beneficial uses, and methods used for detecting impurities. Analytical methods used in water and wastewater treatment for monitoring and processes.


OBJECTIVES

The objective of the course is to provide students with a sound understanding of the rationale behind water quality standards set for potable water supply and wastewater disposal. The course is intended to equip students with basic knowledge of laboratory and online analytical methods used for water analysis and quality assessment. With this, students are expected to be able to properly understand and interpret chemical and microbiological water quality data.

TEACHING STRATEGIES

Private Study
- Review lecture material and textbook
• Complete lab report and assignments
• Download materials from Moodle
• Keep up with notices and find out marks via Moodle

Lectures
• Find out what you must learn
• Summarise essential course material from associated reading
• Hear announcements on course changes
• Be guided by discussion questions and additional reading
• Ask questions

Workshops (Laboratory Work)
• Hands-on activities to set laboratories
• Students must record results during the lab session and complete a laboratory report with these findings discussed.
• Ask questions for clarification during laboratory classes

Assessments (examinations, laboratory reports)
• Demonstrate your knowledge and skills
• Demonstrate higher understanding and problem solving
• Enhance your knowledge by undertaking necessary research to complete these tasks

EXPECTED LEARNING OUTCOMES

By the completion of this course students are expected to understand concepts relevant to the analysis of water and wastewater treatment objectives and verification. Students should have an appreciation for the rationale of water quality guidelines and practical aspects of water quality monitoring for potable water supplies, water reuse applications and wastewater disposal.

In addition to the formal lecture contact time students will be expected to read additional material provided during the lectures and will be given additional references for further background knowledge. Assignments will provide problem solving for individual sections of the course. Undertaking these assignments will put into practice and demonstrate the student's overall understanding of sampling and analysis of water and wastewater treatment systems as well as the applications of water quality guidelines.

For each hour of lecture contact time it is expected that a student will undertake at least 1.5 hours of private study.

ASSESSMENT

The final grade for this course will normally be based on the sum of the scores from each of the assessment tasks. The Final Examination is worth 50% of the Final Mark and the class work (assignments and laboratory report) is worth 50% of the Final Mark. The formal exam scripts will not be returned. Students who perform poorly in assignments are recommended to discuss progress with the lecturer during the semester.

Final Examination = 50%; Assignments = 50%

See additional information on eLearning (UNSW MOODLE) for final exam and supervision arrangements for distance students.

Note: The lecturer reserves the right to adjust the final scores by scaling if agreed too by the Head of School.

Details of each assessment component, the marks assigned to it, and the dates of submission are set out below.

ASSIGNMENTS

<table>
<thead>
<tr>
<th>Assessment Details</th>
<th>Marks</th>
<th>Due Date</th>
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</thead>
<tbody>
<tr>
<td>1. Assignment 1</td>
<td>25%</td>
<td>17 April 2015</td>
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<tr>
<td>2. Assignment 2 (Laboratory Report)</td>
<td>25%</td>
<td>22 May 2015</td>
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</tbody>
</table>

All assignments and reports are to be submitted electronically via UNSW Moodle (by TurnItIn). No hard copies will be accepted. No emailed versions will be accepted. Assignments and reports are due before midnight on the due date. Late assignments will receive a 10% penalty per week or part thereof.
### COURSE PROGRAM

#### SEMESTER 1, 2015

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Lecturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/3</td>
<td>Rationale for water quality monitoring and analytical principles</td>
<td>Richard Stuetz</td>
</tr>
<tr>
<td>2</td>
<td>11/3</td>
<td>Bulk parameter, physical, and inorganic chemical analysis</td>
<td>Richard Stuetz</td>
</tr>
<tr>
<td>3</td>
<td>18/3</td>
<td>Trace organic chemicals analysis</td>
<td>Nhat Le</td>
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<tr>
<td>4</td>
<td>25/3</td>
<td>Trace metals analysis</td>
<td>Richard Stuetz</td>
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<tr>
<td>5</td>
<td>1/4</td>
<td>Microbiology and microbiological analysis</td>
<td>Richard Stuetz</td>
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<tr>
<td></td>
<td>8/4</td>
<td><strong>Mid-semester Break</strong></td>
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<tr>
<td>6</td>
<td>15/4</td>
<td>Non-teaching Week (for internal students)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(Distance student Laboratory class)*</td>
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<tr>
<td>7</td>
<td>22/4</td>
<td>Field Site Tour (Internal students)**</td>
<td>James McDonald</td>
</tr>
<tr>
<td>8</td>
<td>29/4</td>
<td>Laboratory class Part 1 (Internal students)</td>
<td>James McDonald</td>
</tr>
<tr>
<td>9</td>
<td>6/5</td>
<td>Laboratory class Part 2 (Internal students)</td>
<td>James McDonald</td>
</tr>
<tr>
<td>10</td>
<td>13/5</td>
<td>Online (continuous monitoring) analytical techniques</td>
<td>Richard Stuetz</td>
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<tr>
<td>11</td>
<td>20/5</td>
<td>Odour measurement and assessment</td>
<td>Richard Stuetz</td>
</tr>
<tr>
<td>12</td>
<td>27/5</td>
<td>Statistics of data analysis</td>
<td>Nhat Le</td>
</tr>
<tr>
<td>13</td>
<td>3/6</td>
<td>Water quality and public health in drinking and recycled waters</td>
<td>Michael Storey</td>
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* TBC: proposed date for distance students to attend one day Laboratory class

**Additional details on eLearning (UNSW MOODLE)

### RELEVANT RESOURCES

- No specific textbook recommended.
- Useful reference books:


Useful journal articles (most available for free download through UNSW library):


- Any additional materials provided on UNSW Moodle.
DATES TO NOTE
Refer to MyUNSW for Important Dates available at:

https://student.unsw.edu.au/dates

PLAGIARISM
Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person’s work or ideas as if they were your own. When it is necessary or desirable to use other people’s material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

https://student.unsw.edu.au/plagiarism

ACADEMIC ADVICE
For information about:

- Notes on assessments and plagiarism,
- School policy on Supplementary exams,
- Special Considerations,
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

Refer to Academic Advice on the School website available at:

http://www.engineering.unsw.edu.au/civil-engineering/resources/academic-advice