Summer II – 2017
Chem 1412 – 46001 (4 Credit Hours)

Instructor: A. Daniel
Phone: 972 / 860-8337
e-mail: alexanderdaniel@dccc.edu
Office: C327
Office hours: As per appointment.

Class Meetings:
Lecture: M T W R 8:00AM - 10:00 AM C205
Lab: M T W R 10:20AM - 1:00 PM S206

Course Description:

TCCNS: CHEM 1412: General Chemistry II 2014 Core Curriculum Foundational Component
Area: 030 Life and Physical Sciences
Course Description: This course is for science and science-related majors. It is a continuation of
Chemistry 1411. Topics include states of matter, phase diagrams and intermolecular interactions;
reaction kinetics, chemical equilibrium, modern acid-base theory, buffers, chemical
thermodynamics, colligative properties of solutions, electrochemistry and nuclear chemistry.
Topics may further include transition-metal chemistry, an introduction to organic chemistry and
qualitative inorganic analysis. (3 Lec., 3 Lab.)

Prerequisite: Chemistry 1411. One of the following must be met: (1) Developmental Reading
0093 or (2) English as a Second Language (ESOL) 0044 or (3) have met the Texas Success
Initiative (TSI) Reading standard.

Texts, Required materials:

2. Online home-work: masteringchemistry.com
3. Scientific calculator
4. Safety goggles

CHEM 1412 General Chemistry II (lecture)
Learning Outcomes
Upon successful completion of this course, students will:
1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier’s Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.

**General Chemistry II (lab)**
Basic laboratory experiments supporting theoretical principles presented in CHEM 1412 (lecture); introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports.

**Learning Outcomes**
Upon successful completion of this course, students will:
1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry and chemical instrumentation.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

**Core Objectives:**

CHEM 1412 develops the following Core Objectives: *Critical Thinking* - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. *Communication* - to include effective development, interpretation and expression of ideas through written, oral and visual communication. *Empirical and Quantitative Skills* - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. *Teamwork* - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
Core Objective Development Statements: CHEM 1412 develops Critical Thinking by exposing students to scientific experiments where they make conclusions about what they observe. CHEM 1412 develops Communication by having the students explain either through written or oral communication questions where they explain scientific concepts covered in class. CHEM 1412 develops Empirical and Quantitative Skills by having students perform laboratory exercises where quantitative data is obtained and analyzed, and by having students work out problems in the classroom and in on-line homework assignments. CHEM 1412 develops Teamwork by having the students work in groups in the classroom to solve a problems worksheet and by creating small groups to carry out experiments in the laboratory.

Mastering Chemistry Online Home Work
The online home-work helps you to understand concepts and practice problems so that it helps to attain higher grades. It is found that the introductory chapter takes some time; so that it is better to register and start the home work as soon as possible.

Access Code: Those who have used masteringchemistry home-work may be able to continue the same access by re-registering with the new course ID. If you do not have used the home work earlier, you have to get a new access code. The Eastfield book store has a package of text book and access code for the mastering chemistry home work. If you are purchasing a used book, be sure to order the access code online by going to masteringchemistry.com at the earliest. Remember, if you are comfortable using an e-book, you can get the masteringchemistry with the e-book.

Register: You have to register for the home work online logging into masteringchemistry.com and proceeding as the website guides you. Your course ID is: DNL2017SU1412S1 (with no space in between).

Evaluation Procedures:

Grading: Your performance in the lecture will be evaluated in midterm exams, assignments, writing exercises, quizzes and a comprehensive final exam. There are two Pre-Exams to test the knowledge of material from Chem 1411 needed for better understanding of the topics discussed in this course. Short pop-quizzes will be given at any time of the classes. Average of the quiz grades will be taken for the final grade. All missed exams/quizzes will result in a score of zero. If it is to your benefit, the final exam grade will be substituted for the lowest midterm test grade. The course grade will be calculated in the following manner:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance, participation</td>
<td>5%</td>
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<tr>
<td>Quizzes</td>
<td>15%</td>
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<tr>
<td>3 Exams</td>
<td>30%</td>
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<tr>
<td>Assignments (Online HW)</td>
<td>15%</td>
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<td>Lab Experiments</td>
<td>25%</td>
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<td>ACS Final Examination</td>
<td>10%</td>
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<td><strong>Total</strong></td>
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The overall grade for the course will be determined using the following distribution:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>&gt; 90%</td>
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<tr>
<td>B</td>
<td>80 – 89%</td>
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<td>C</td>
<td>70 – 79%</td>
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<tr>
<td>D</td>
<td>60 – 69%</td>
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<tr>
<td>F</td>
<td>&lt; 59.5%</td>
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</table>
**Writing Across the Curriculum:** Science courses at Eastfield College follow a principle of “Writing Across the Curriculum”. Each course incorporates a writing element. Writing is a critical part of the communication of ideas, and is important in the synthesis and analysis of scientific concepts. Writing in this course is accomplished through lab reports and assignments.

**The Laboratory**

1. There is a short safety and technique discussion at the beginning of each lab period. If you arrive late, you will not be allowed to participate in lab.

2. Labs require a pre-lab activity: (a pre-lab quiz before lab, a written outline of the lab procedure). Lab material is available in the ‘Community’ site of ecampus. Each lab should be printed out early and the student should come prepared to do the lab with the printed material. The pre-lab quiz for each lab from the ecampus should be printed out and completed. The outline for the lab is hand written (include the purpose of the lab, the principle and a short description of what you are going to do, important safety steps). The quiz and the outline are due at the beginning of the lab period. Its purpose is to ensure that you understand the experiment and all related safety procedures. For your safety in handling chemicals, you should wear SAFETY GOGGLES. If you have not completed the prelab assignment, or do not have a pair of safety goggles you will not be allowed to attend lab.

3. Lab reports are due at the end of the lab period after completion of the experiment. Late reports will not be accepted.

4. Your lab grade will be based on following: safety procedures, your lab report and prelab, accuracy, precision, and yield.

5. Some of the labs are writing labs, Process Oriented Guided Inquiry Learning type where students work in groups. Each of these labs is worth half the grade of regular labs. It is found that students get more insight into chemical concepts by answering the inquiry questions and group discussions.

6. **If you miss more than three labs you will receive a failing grade for the entire course.**

7. Food and drinks are not allowed in the chemistry labs due to safety precautions.

**Obtaining Final Course Grades Using eConnect**

Final Grade Reports are no longer mailed. Convenient access is available online at [www.econnect.dcccd.edu](http://www.econnect.dcccd.edu). Use your identification number when you log onto eConnect, an online system developed by the DCCCD to provide you with timely information regarding your college record. Your grades will also be printed on your **Student Advising Report**, which is available in the Admissions Office.
Eastfield College Email Policy

Faculty and students must have and use a DCCCD account for all correspondence relating to academic coursework. For information on setting up a DCCCD student email account go to: http://www.dcccd.edu/netmail/home.html

Course Outline: Details of the working days as well as class work, quizzes & exams, lab work and online homework “mastering chemistry” expected to be completed are attached to the syllabus at the end.

Attendance Policy:

Attendance in every class is among the minimum requirements for success. If you are absent from classes, you may miss the quizzes and the grades associated with it. Attendance in lab is mandatory. There are no makeup labs.

Science Corner

The Science Corner provides free tutoring in Biology, Chemistry, and Physics, and has information on open labs. Students are encouraged to take advantage of this service for additional help in their course work. The Science Corner is located in the library in L-building. For more information on tutors, current semester hours of operation and policies, please visit the link: http://www.efc.dcccd.edu/smpe/ScienceCorner/index.asp

Chemistry Homepage

The Chemistry Homepage in Eastfield College Website has several useful information available to students. Explore the page and take a look at the links, including useful information regarding several concepts in Chemistry. For more information please visit the link: http://eastfieldcollege.edu/smpe/Chemistry/index.asp

Financial Aid Statement

Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

Repeating This Course: (Third Attempt to Enroll in a Course)

Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any of the Dallas County Community Colleges since the Fall 2002 Semester. See Third Attempt to Enroll in a Course at: http://www.dcccd.edu/thirdcourseattempt/
Academic Honesty

Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion.

As a college student, you are considered a responsible adult. Your enrollment indicates acceptance of the DCCCD Code of Student Conduct published in the DCCCD Catalog at http://www1.dcccd.edu/cat0506/ss/code.cfm.

Academic dishonesty includes, but is not limited to, cheating on tests, plagiarism and collusion. **Cheating** includes copying from another student’s test or homework paper, using materials not authorized, collaborating with or seeking aid from another student during a test, knowingly using, buying, selling, stealing, or soliciting the contents of an unadministered test, and substituting for another person to take a test. **Plagiarism** is the appropriating, buying, receiving as a gift, or obtaining by any means another’s work and the unacknowledged submission or incorporation of it in one’s own written work. **Collusion** is the unauthorized collaboration with another person in preparing written work for fulfillment of course requirements. Academic dishonesty is a serious offense in college. You can be given a failing grade on an assignment or test, can be failed for the class, or you can even be suspended from college.

Food and Drink Policy
Food, drinks, and tobacco products are prohibited in Eastfield College classrooms.

Religious Holidays
Absences for observance of a religious holy day are excused. Notification of the absence must be given to the instructor in writing at least two weeks prior to the date of the holy day. A student whose absence is excused to observe a religious holy day is allowed to contract with the instructor to take a make-up examination or complete an assignment within a mutually agreed upon time after the absence.

Withdrawal Policy

If you are unable to complete this course, it is your responsibility to withdraw formally. The withdrawal request must be received in the Registrar’s Office by **August 3rd**. Failure to do so will result in your receiving a performance grade, usually an “F.” If you drop a class or withdraw from the college before the official drop/withdrawal deadline, you will receive a “W” (Withdraw) in each class dropped. For more information about drop deadlines, refer to the current printed Credit Class Schedule, contact the Admissions/Registrar’s Office at 972-860-7167 (Room C119), or contact the division office.

If you drop a class via eConnect, make sure to print a copy of the confirmation and keep the copy. In the event of a discrepancy it will be the responsibility of the student to provide documentation of having dropped the class.

**STOP BEFORE YOU DROP**

For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop.
You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

Family Educational Rights and Privacy Act of 1974 (FERPA)

In compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), the College may release information classified as “directory information” to the general public without the written consent of the student. Directory information includes: (1) student name, (2) student address, (3) telephone numbers, (4) date and place of birth, (5) weight and height of members of athletic teams, (6) participation in officially recognized activities and sports, (7) dates of attendance, (8) educational institution most recently attended, and (9) other similar information, including major field of student and degrees and awards received. Students may protect their directory information at any time during the academic year. If no request is filed, directory information is released upon written inquiry. No telephone inquiries are acknowledged. No transcript or academic record is released without written consent from the student, except as specified by law.

Classroom Etiquette

General Chemistry Courses Chemistry 1411 and 1412 represent major steps in the growth and development of the future scientist or physician or allied health field worker. Systematic and serious learning are encouraged in these courses. Any disruption to the learning atmosphere in the class room is not allowed. Cell phones should be switched off.

Children on Campus

The institution strives to protect an environment most conducive to teaching and learning for all enrolled students. Children who are taking part in organized scheduled activities or who are enrolled in specific classes are welcomed. Minor children, however, should not be brought to the institution unless closely supervised by their parent. Minor children should not be brought into classrooms, laboratories or other facilities of the college. This practice is disruptive to the learning process. In the case of an emergency where the student-parent has no alternative but to bring the child to campus, classroom faculty or the administrative heads of other units have full discretion as to whether a child may be allowed to quietly stay in the location. These individuals may require that children be removed by the student-parent from the setting if, in their opinion, the presence of the child is deemed to be disruptive to the learning process. For reasons of security and child welfare the institution will not permit unattended children to be left anywhere on the premises. Parents who have problems with childcare should visit the Counseling and/or Advisement Center to receive referrals to childcare services in the area.

INSTITUTIONAL EQUITY

The Office of Institutional Equity, in coordination with DCCCDD colleges, has the primary responsibility for reviewing, updating and implementing compliance policies and procedures. The Institutional Equity
and Compliance Officer and the Office of Institutional Equity will ensure compliance with College District policies, federal and state laws related to sexual assault, Title IX, Title II (Americans with Disabilities Act) and the Military Veterans Full Employment Act to support diversity and inclusion.

**Students with Disabilities**

If you are a student with a disability and/or special needs, or if you think you may have a disability, please contact the college Disability Services Office (DSO). Please note that all communication with DSO is confidential. If you are eligible for accommodations, please provide or request that the DSO send your accommodation letter to me as soon as possible (students are encouraged to contact DSO at the beginning of the semester). For more information regarding the College Disability Services Office, please visit the Student Services website: [https://www.eastfieldcollege.edu/services/Disability/Pages/default.aspx](https://www.eastfieldcollege.edu/services/Disability/Pages/default.aspx)
or contact DCCCD Office of Institutional Equity at (214) 378-1633.

College Disability Services Office 972-860-8348

**A Note on Harassment, Discrimination and Sexual Misconduct**

We are committed to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX and DCCCD policy prohibit harassment, discrimination and sexual misconduct. If you encounter harassment, sexual misconduct (sexual harassment, sexual assault, stalking, relationship violence, stalking), retaliation or discrimination based on race, color, religion, age, national origin, disability, sex, sexual orientation, gender identity, and/or gender expression, please contact your College Title IX Coordinator or the Office of Institutional Equity. We treat this information with the greatest degree of confidentiality possible while also ensuring student welfare and college safety. We are concerned about the well-being and development of our students, and are available to discuss any concerns. There are both confidential and non-confidential resources and reporting options available to you. If students wish to keep the information confidential, please contact the college Counseling or Student Health Services. As required by DCCCD policy, incidents of discrimination and/or sexual misconduct shared with faculty will be reported to the College Title IX Coordinator or District Title IX Coordinator. The Title IX Coordinator will contact the student and determine if further investigation is needed. For more information about policies, resources or reporting options, please contact your college Title IX Coordinator or visit [https://www.eastfieldcollege.edu/au/fastfacts/legal/TitleIX/Pages/default.aspx](https://www.eastfieldcollege.edu/au/fastfacts/legal/TitleIX/Pages/default.aspx).

College Title IX Coordinator
Eastfield
972-860-7325

District Title IX Coordinator
Office of Institutional Equity
214-378-1633

The instructor reserves the right to amend this syllabus as necessary.
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<tr>
<th>Sl #</th>
<th>Date</th>
<th>Chapter</th>
<th>Topic</th>
<th>Quiz-H/W</th>
<th>Assignment/ Lab</th>
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<tbody>
<tr>
<td>1</td>
<td>07/11</td>
<td>10</td>
<td>Introduction – Ch 10</td>
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<td>Lab Safety, Blackboard, Check in</td>
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<tr>
<td>2</td>
<td>07/12</td>
<td>10</td>
<td>Molecular shapes, Intermolecular forces, Phase Diagram</td>
<td>Quiz 1</td>
<td>Reactions in Aq. Solutions</td>
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<tr>
<td>3</td>
<td>07/13</td>
<td>11</td>
<td>Solutions and Their Properties</td>
<td>Quiz 2</td>
<td>POGIL – Hanson: Activity 9-2, Electronegativity &amp; Bond Polarity (S200)</td>
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<tr>
<td>4</td>
<td>07/14</td>
<td>11</td>
<td>Solutions and Their Properties</td>
<td>Quiz 3</td>
<td>POGIL – Moog: ChemActivity 27, Intermolecular Forces (S200)</td>
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<tr>
<td>5</td>
<td>07/17</td>
<td>12</td>
<td>Chemical Kinetics</td>
<td>Quiz 4</td>
<td>Mol mass–Freezing pt</td>
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<td>6</td>
<td>07/18</td>
<td>12</td>
<td>Chemical Kinetics</td>
<td>Quiz 5</td>
<td>Rate Law (S200)</td>
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<td>7</td>
<td>07/19</td>
<td>13</td>
<td>Chemical Equilibrium</td>
<td>Quiz 6</td>
<td>POGIL – Hanson Activity 13-1, Rates of Chemical Reactions</td>
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<td>8</td>
<td>07/20</td>
<td>13</td>
<td>Chemical Equilibrium</td>
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<td>Exam 1 (Ch 10-12)</td>
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<td>9</td>
<td>07/24</td>
<td>14</td>
<td>Acids and bases</td>
<td>Quiz 7</td>
<td>Equilibrium Constant</td>
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<td>10</td>
<td>07/25</td>
<td>14</td>
<td>Acids and bases</td>
<td>Quiz 8</td>
<td>Le Chatelier’s Principle</td>
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<td>11</td>
<td>07/26</td>
<td>15</td>
<td>Applications of Aq. Equilibrium</td>
<td>Quiz 9</td>
<td>David Hanson: Activity-15-1&amp;15-2 (Equilibrium; Reaction quotient and Eq. constant)</td>
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<td>12</td>
<td>07/27</td>
<td>15</td>
<td>Applications of Aq. Equilibrium</td>
<td>Quiz 10</td>
<td>POGIL – Moog: ChemActivity 42, 45-Acids &amp; Bases, pH</td>
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<td>Date</td>
<td>Assignment</td>
<td>Exam/Quiz</td>
<td>Notes</td>
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<td>13</td>
<td>07/31</td>
<td>16 Thermodynamics</td>
<td>Quiz 11</td>
<td>Acid-Base Titration Curves</td>
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<td>14</td>
<td>08/01</td>
<td>16 Thermodynamics</td>
<td>Quiz 12</td>
<td>$K_a$ of a Weak Acid</td>
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<td>15</td>
<td>08/02</td>
<td>17 Electrochemistry</td>
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<td>Exam 2 (Ch 13-15)</td>
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<td>16</td>
<td>08/03</td>
<td>17 Electrochemistry (Last day to withdraw)</td>
<td>Quiz 13</td>
<td>POGIL – Moog: ChemActivity 52, 53, Entropy I &amp; II</td>
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<td>17</td>
<td>08/07</td>
<td>22 Nuclear chemistry</td>
<td>Quiz 14</td>
<td>Electrochemical Cells</td>
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<td>18</td>
<td>08/08</td>
<td>22 Nuclear Chemistry</td>
<td></td>
<td>Exam 3 (Ch 16,17)</td>
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<tr>
<td>19</td>
<td>08/09</td>
<td>Final Exam review</td>
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<td>Group Work – Review – Final Exam Practice Questions</td>
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<tr>
<td>20</td>
<td>08/10</td>
<td>Final ACS exam (Comprehensive Standard Exam)</td>
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