These sheets provide answers to most of your questions about the organization of the course. I suggest that, after reading them carefully, you keep them with your notes for future reference. The online version contains useful links and updates.

COURSE OBJECTIVES

Chemistry 1R03 is an introductory chemistry course intended to:

- discuss chemical concepts, theories and examples of fundamental chemistry suitable for students without grade 12 chemistry or for students who wish to refresh their general chemistry knowledge
- help develop skills needed to solve chemical problems (this largely takes place in the tutorials and also during class time)

INSTRUCTIONAL TEAM

CHEM 1R03 is taught in one section. The instructor facilitates the in-class sessions, which include, but are not limited to: developing problem-solving skills, presentation of some of the course material in context and through applications, interactive activities, demonstrations, and discussion. The instructor is also available for one-on-one discussions during office hours, and monitors the on-line postings as often as possible. Tutorials are run by graduate teaching assistant.

The course consists of three 1 hour lecture each week. The course will also include one 50 minutes tutorial each week running from Jan. 16 to Apr. 3 inclusive. The tutorial will be in a question and answer format (assigned questions) with a quiz at the end of the tutorial (your 9 best quizzes will determine your tutorial mark)

    SECTION 01 – Dr. L. CHEN (Lecture): Mon, Thr 9:30, Tu 10:30 (ABB 102)
    SECTION 01 – Mr. J. GOETTEL (Tutorial): Mon 4:30 (ABB 102)

ONLINE COURSE MANAGEMENT

CHEM 1R03 will make use of AVENUE, an integrated set of tools for delivering course components over the Internet. For example, tutorials, a course bulletin board, and other resources will be available. Important announcements and updates are done through Avenue and students are responsible for checking the CHEM 1R03 page daily.

AVENUE

Since AVENUE courses are maintained in a secure environment on the Internet, only students registered in CHEM 1R03 have access to the materials. In order to login to AVENUE you need:

1. the internet address:  http://avenue.mcmaster.ca/
2. your user name: it is your MacID (if the Registrar has not yet added you to the electronic course list, we will not have your MacID on our database)
3. your password: you will be given a password when you sign-up for your MacID.

AVENUE can be accessed from your home or dormitory room or computer labs/libraries on campus.
CHEMISTRY 1R03 WINTER 2017: Information Sheets

Computer lab hours: [http://www.mcmaster.ca/uts/lab_facilities/labs/lab_avail/hours.html](http://www.mcmaster.ca/uts/lab_facilities/labs/lab_avail/hours.html)

You will need to set up a proxy account with UTS to use the on-campus computer clusters. You can register for such an account online through MOSAIC. If you have any difficulties in the computer clusters, ask for help from a Student Consultant.

If you attempt to login to AVENUE and find that you are not registered under the expected user name and password, follow the steps described on the AVENUE support page. If your registration is delayed and you need early access to the website, contact Dr. Davis. Other AVENUE issues can be addressed to the IT help desk in the Mills library (2nd floor): [http://library.mcmaster.ca/content/it-help-desk](http://library.mcmaster.ca/content/it-help-desk)

OFFICE HOURS

The instructor will hold office hours in **ABB-159** with times to be posted in AVENUE.

The tutorial teaching assistant will hold office hours in **ABB-142** with times to be posted in AVENUE.

TUTORIALS

**Weekly tutorials** are run by a teaching assistant and concentrate on the development of problem-solving skills and will start the **week of January 16**th.

Tutorial questions and other resources will be found on AVENUE. If you wish to work on the tutorial questions, you must access and print them **before** attending a tutorial session. The solutions to tutorial questions will be posted on AVENUE at the end of each week.

ASSIGNMENTS

There will be 5 assignments in CHEM 1R03. The assignments must be submitted at the **beginning** of the class to the instructor on the due dates. Late assignment will **not** be accepted. A mark of **zero** will be recorded for the late assignment.

<table>
<thead>
<tr>
<th>Assignment #</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 26</td>
</tr>
<tr>
<td>2</td>
<td>Feb 9</td>
</tr>
<tr>
<td>3</td>
<td>Mar 2</td>
</tr>
<tr>
<td>4</td>
<td>Mar 16</td>
</tr>
<tr>
<td>5</td>
<td>Mar 30</td>
</tr>
</tbody>
</table>

iCLICKER & REEF POLLING

The instructor will use the iClicker classroom response system for in-class questions. These questions will be graded, and may contribute up to 2% to your final grade. Participation in the iClicker questions is highly recommended although optional (see page 4). Your grade on these questions will be derived as follows:

<table>
<thead>
<tr>
<th>% of questions correctly answered</th>
<th>Grade out of 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-100</td>
<td>2.0</td>
</tr>
<tr>
<td>65-79</td>
<td>1.5</td>
</tr>
<tr>
<td>50-64</td>
<td>1.0</td>
</tr>
<tr>
<td>40-49</td>
<td>0.5</td>
</tr>
<tr>
<td>&lt; 40</td>
<td>0.0</td>
</tr>
</tbody>
</table>
The purpose of these questions is to address common course concepts and to encourage pre-class preparation and in-class engagement. The instructor will provide more information in class on the use of iClickers and how to register your iClicker wand (available at the campus store) OR how to use Reef Polling and your mobile device to participate in this component.

QUICKTONS, TESTS, AND EXAMINATIONS

- **Quizzes:** Eleven tutorial quizzes are available during the term. Quizzes start January 16th and continue weekly for the rest of the term, with the exception of the mid-term recess from February 20 – 24th. See the course calendar on page 8 for a summary of all due dates. The top 8 of 11 quiz marks are counted towards your final grade.

- **Term tests:** will be held on the following days:
  - Test 1: Friday, February 17th, 2017 from 5:30 – 7:10 pm, Rooms TBA
  - Test 2: Friday, March 24th, 2017 from 5:30 – 8:00 pm, Rooms TBA

  Pre-existing conflicts should be discussed with the instructor **a minimum of 1 week** in advance of the test date.

- **Final Examination:** is scheduled for April by the Registrar’s Office and will test all course content from the Winter term. This examination **must be written** in order to pass the course.

- **Format of the Term tests and Final Examination:**
  - Stage 1 (individual): students complete the test/exam alone
  - Stage 2 (group): after students turn in their individual test/exam, students form a group of four students and complete the test/exam
  - The final score on a test/exam is calculated as **80% Stage 1** and **20% Stage 2**, unless the Stage 2 score is lower than Stage 1 score, then the final score is calculated as **100% Stage 1** (see note)
  - For example, if you received 70% on Stage 1, and 90% on Stage 2, your final score is 74%. (70 × 80% + 90 × 20% = 74%). On the other hand, if you received 90% on Stage 1, and 70% on Stage 2, your final score is 90%.
  - **Note:** Students must complete both Stages of the test/exam. If a student is absent from the Stage 2 test/exam or left the Stage 2 exam blank, then a score of zero will be recorded for Stage 2 and the student’s final grades cannot be calculated as 100% Stage 1, but it can only be calculated as 80% Stage 1 and 20% Stage 2.

REQUESTS FOR RELIEF OF MISSED ACADEMIC TERM WORK

If you are absent from the university for a minor medical reason, lasting fewer than 3 days, you may report your absence, without documentation, using the McMaster Student Absence Form (MSAF). Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, report your absence to chenl109@mcmaster.ca. Then contact the instructor immediately (normally **within 2 working days**) via email to learn what relief may be granted for the work you have missed.

The MSAF on-line, self-reporting tool cannot be used to apply for any missed final examination or its equivalent. See **Petitions for Special Consideration** in the Undergraduate Calendar.
CALCULATORS

The two term tests and the final examination all require a calculator. THE ONLY ACCEPTABLE CALCULATOR IS THE CASIO FX 991 (MS, MS +_ and ES models all acceptable) available at the Campus Store. NO OTHER CALCULATOR IS PERMITTED DURING TESTS AND EXAMS.

CALCULATION OF FINAL MARK FOR THE COURSE

Because the iClicker components of the course may be considered optional, for each student the final grade will be calculated according to each of the two weighting options shown below. Each student will receive the highest grade of the two calculated grades.

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>iClicker Questions</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Tutorial Quizzes (8)</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Assignments (5)</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Term Test 1</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>Term Test 2</td>
<td>23%</td>
<td>23%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
<td>42%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Note: The instructor and university reserve the right to modify elements of the course during the term. The university may change dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

REQUIRED ITEM

- The Textbook for the course is *Introductory Chemistry: A Foundation, 8th edition*, by Zumdahl.

ALSO RECOMMENDED

- i-Clicker classroom response system can be purchased from the Campus Store. (~$40, includes 6-month subscription to REEF Polling) OR students may use their mobile device after subscribing to the REEF Polling program; [https://app.reef-education.com/#/login](https://app.reef-education.com/#/login)

COURSE CONTENT

- The Chapters and the recommended questions and problems listed below, as well as additional material used in class form the course content. This material will be covered in the classes, assignments, tutorial quizzes, term tests, and final examination. The chapters listed below represent a guideline, correlating course and textbook content.
Chapter 1 Chemistry: An Introduction
Questions and Problems: 7, 8, 9, 10, 12, 14

Chapter 2 Measurements and Calculations
Questions and Problems: 5, 6, 11, 12, 13, 14, 17, 18, 33, 35, 37, 38, 40, 43, 44, 53, 54, 55, 56, 63, 64, 65, 70, 77, 78, 91, 92, 94, 97, 102, 103, 111, 113, 124, 126, 142, 143, 144, 151, 156, 157

Chapter 3 Matter
Questions and Problems: 1, 8, 10, 17, 18, 19, 20, 30, 32, 49, 50, 55, 56

Chapter 10 Energy (Ch. 10.1-10.6)
Questions and Problems: 1-20, 24, 32, 34, 36, 38

Chapter 13 Gases
Questions and Problems: 16, 20, 24, 28, 30, 34, 38, 40, 42, 47, 48, 50, 52, 56, 62, 68, 70, 72, 74, 84, 90, 92, 100, 140, 148

Chapter 4 Chemical Foundations: Elements, Atoms, and Ions (Ch. 4.1-4.5, 4.8-4.11)
Questions and Problems: 4, 8, 10, 16, 18, 24, 26, 28, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 60, 64, 66, 68, 70, 72, 74, 76, 78, 84, 86, 100, 106

Chapter 5 Nomenclature
Questions and Problems: 14, 16, 18, 22, 24, 30, 36, 40, 44, 46, 48, 50, 62, 66, 76

Chapter 8 Chemical Composition
Questions and Problems: 28, 30, 36, 40, 46, 50, 60, 62, 68, 72

Chapter 6 Chemical Reactions: An Introduction
Questions and Problems: 40, 42, 50, 54, 56, 58, 60, 64

Chapter 9 Chemical Quantities (and Chapter 12.10)
Questions and Problems: 6, 8, 10, 12, 16, 20, 22, 24, 26, 28, 30, 32, 36, 40, 46, 48, 52, 54, 58, 62, 64, 66

Chapter 14 Liquids and Solids (and Chapter 13.1-13.4)
Questions and Problems: 4, 6, 8, 10, 12, 14, 16, 18

Chapter 7 Reactions in Aqueous Solutions
Questions and Problems: 20, 24, 26, 28, 30, 40, 50, 52, 54, 58, 68, 72, 74, 92

Chapter 15 Solutions
Questions and Problems: 16, 18, 26, 36, 52, 56, 64, 70, 74, 80, 82, 88, 98, 108, 122, 130, 132

Chapter 16 Acids and Bases
Questions and Problems: 8, 10, 12, 14, 16, 18, 20, 26, 28, 34, 36, 40, 42, 44, 46, 48, 50, 52, 60, 62, 64, 66, 92, 94, 100
CHEMISTRY 1R03 WINTER 2017: Information Sheets

Chapter 17 Equilibrium
Questions and Problems: 16, 20, 26, 28, 30, 32, 34, 36, 38, 40, 44, 46, 48, 58, 60, 62, 64, 70, 88, 90, 96, 100, 102, 106, 108, 114, 118

Chapter 18 Oxidation-Reduction Reactions and Electrochemistry
Questions and Problems: 2, 10, 14, 16, 18, 20, 22, 28, 30, 32, 42, 44, 46, 48, 50, 52, 54, 56, 84, 86, 94, 98, 102

Chapter 11 Modern Atomic Theory (and Ch. 4.5 – 4.7)
Questions and Problems: 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 96, 98, 104, 108, 114,118

Chapter 12 Chemical Bonding (and Ch. 14.5 – 14.6)
Questions and Problems: 8, 10, 12, 14, 16, 18, 20, 24, 26, 28, 32, 34, 36, 38, 40, 46, 48, 56, 62, 64, 66, 68, 70, 72, 74, 84, 92, 102, 110, 112, 116, 118

Chapter 19 Radioactivity and Nuclear Energy (and Ch. 4.7)
Questions and Problems: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 26, 28, 32, 34, 36, 38, 40, 42, 44, 52,92, 94, 96, 98, 100, 102

Chapter 20 Organic Chemistry

SENATE POLICY STATEMENTS

All students should read and become familiar with the Statement on Student Academic Responsibility and the Academic Integrity Policy as found in the Senate Policy Statements distributed at the time of registration and available in the Senate Office. Any student who infringes on these resolutions will be treated according to the published policy.

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty.

The following illustrate only four of many forms of academic dishonesty:

- Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained;
- Copying or using unauthorized aids in the laboratory exercises;
- Improper collaboration on group or individual work;
- Copying or using unauthorized aids during tests and examinations.

Copyright Policy: In this course you will have access to material that is subject to copyright laws. This includes (but is not limited to) the textbook, solutions manual and all resources developed by the instructors such as lab manuals, demonstration videos, quizzes, assignments, tutorials, tests, class notes, class slides and web modules.

Page 6 of 8
CHEMISTRY 1R03 WINTER 2017: Information Sheets

Under no circumstance are you allowed to share or redistribute this material in any printed or electronic form without the explicit written consent of the copyright holder. This includes posting any course material on Internet bulletin boards, course repositories, social networks, etc.

DISCRIMINATION POLICY

McMaster University is concerned with ensuring an environment that is free of all adverse discrimination. If there is a problem that cannot be resolved by discussion among the persons concerned, individuals are reminded that they should contact their Department Chair, or Human Rights & Equity Services, as soon as possible. Issues involving teaching assistants should also be brought to the attention of the Lab Coordinator.

STUDENT RESOURCES

There are many opportunities for students seeking any number of help opportunities while enrolled at McMaster. Please make yourself familiar with the services offered on campus.

Student Success Center which is on campus to engage students and alumni in diverse learning opportunities to support their academic, personal and professional growth: http://studentsuccess.mcmaster.ca/

Student Wellness providing counseling and medical services including wellness education: http://wellness.mcmaster.ca/

Student Accessibility Services offers various supports for students with disabilities: http://sas.mcmaster.ca/
<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>January</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><em>Classes Begin</em></td>
<td><em>Intro Class</em></td>
<td><em>Last day for add/drop/swap</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9</strong> Ch. 1 &amp; 2</td>
<td>10 Ch. 3 &amp; 10 Ch. 13 – Class 1</td>
<td>11</td>
<td>12 Ch. 4 – Class 2</td>
<td>13</td>
</tr>
<tr>
<td><strong>16</strong> Ch. 13 – Class 3 Tutorial #1</td>
<td>17 Ch. 4 – Class 1</td>
<td>18</td>
<td>19 Ch. 4 – Class 2</td>
<td>20</td>
</tr>
<tr>
<td><strong>23</strong> Ch. 5 – Class 1 Tutorial #2</td>
<td>24 Ch. 5 – Class 2</td>
<td>25</td>
<td>26 Ch. 8 – Class 1 Assignment #1 due</td>
<td>27 Review</td>
</tr>
<tr>
<td><strong>February</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 Ch. 8 – Class 2 Tutorial #3</td>
<td>31 Ch. 6</td>
<td>1</td>
<td>2 Ch. 9 – Class 1</td>
<td>3</td>
</tr>
<tr>
<td><strong>6</strong> Ch. 9 – Class 2 Tutorial #4</td>
<td>7 Ch. 14 – Class 1</td>
<td>8</td>
<td>9 Ch. 14 – Class 2 Assignment #2 due</td>
<td>10</td>
</tr>
<tr>
<td><strong>13</strong> Ch. 14 – Class 3 Tutorial #5</td>
<td>14 Ch. 7</td>
<td>15</td>
<td>16 Ch. 15</td>
<td>17 <em>Test 1: 5:30 pm</em></td>
</tr>
<tr>
<td><strong>20</strong> Mid-term Recess</td>
<td>21 Mid-term Recess</td>
<td>22 Mid-term Recess</td>
<td>23 Mid-term Recess</td>
<td>24 Mid-term Recess</td>
</tr>
<tr>
<td><strong>March</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 Ch. 16 – Class 1 Tutorial #6</td>
<td>28 Ch. 16 – Class 2</td>
<td>1</td>
<td>2 Ch. 16 – Class 3 Assignment #3 due</td>
<td>3</td>
</tr>
<tr>
<td><strong>6</strong> Ch. 17 – Class 1 Tutorial #7</td>
<td>7 Ch. 17 – Class 2</td>
<td>8</td>
<td>9 Ch. 17 – Class 3</td>
<td>10 <em>Last day to cancel</em></td>
</tr>
<tr>
<td><strong>13</strong> Ch. 17 – Class 4 Tutorial #8</td>
<td>14 Ch. 18 – Class 1</td>
<td>15</td>
<td>16 Ch. 18 – Class 2 Assignment #4 due</td>
<td>17</td>
</tr>
<tr>
<td><strong>20</strong> Ch. 18 – Class 3 Tutorial #9</td>
<td>21 Ch. 11 – Class 1</td>
<td>22</td>
<td>23 Ch. 11 – Class 2</td>
<td>24 <em>Test 2: 5:30 pm</em></td>
</tr>
<tr>
<td><strong>27</strong> Ch. 12 – Class 1 Tutorial #10</td>
<td>28 Ch. 12 – Class 2</td>
<td>29</td>
<td>30 Ch. 19 Assignment #5 due</td>
<td>31</td>
</tr>
<tr>
<td><strong>April</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Ch. 20 – Class 1 Tutorial #11</td>
<td>4 Ch. 20 – Class 2</td>
<td>5</td>
<td>6 <em>Review Class/Course Evaluation</em></td>
<td>7 Classes End</td>
</tr>
</tbody>
</table>

Page 8 of 8