

## SECTIONS 501-511

Tuesdays &amp; Thursdays 9:35-10:50am

Dr. Wendy L. Keeney-Kennicutt (Kennicutt@mail.chem.tamu.edu)

with

Judith Kwarteng Amaning, Supplemental Instruction leader

Welcome to CHEM 101 – the writing intensive sections! As the science that describes matter, chemistry is vital to our understanding of many fields from biology to the environment to materials science. Rapid new developments in all of these areas virtually guarantee that chemistry will become even more important in the years to come. Knowledge of chemistry is thus an important ingredient in a liberal arts education, and an essential foundation for a technical education. The ability to communicate that knowledge is also critical in this day and age. So writing about chemistry and topics related to this class will be a part of both lecture and lab.

Chemistry 101 and 102 are the first-year chemistry sequence in the core curriculum. Because chemistry is so important to many fields, this is a very large course here at Texas A&M. Although this large enrollment does place certain limitations on us, we in the First Year Chemistry Program are committed to providing you an interesting and stimulating course. To this end, the lecture and laboratory are together in one 4-hour course. We have carefully chosen a textbook for its clarity, examples, and problems. We try to make ourselves approachable both in and outside the classroom. There will be teaching assistants available most hours of the day in Room 116 Held to answer both lab and lecture questions.

This handout outlines my teaching philosophy and policies for my sections of lecture and the laboratory/recitation. Please read this material carefully to familiarize yourself with the various rules and procedures, especially those which govern examinations and grades. At the end, you will find two calendars which contain (1) exam dates and reading assignments for lecture and (2) the laboratory/recitation section. In order to get the most out of lectures in this course, it is beneficial that you read the assigned material before it is discussed in class. In order to get the most out of laboratory/recitation, come to each lab prepared for the scheduled activities.

I will strive to make this course a meaningful and enjoyable experience for you. Please feel free to call upon me whenever I can be of help. I am giving weekly review sessions and I will be available in Room 116 HELD during office hours to answer both laboratory and lecture questions.

In addition, the First Year Chemistry Program is on the World Wide Web. It can be accessed through <http://www.chem.tamu.edu/class/fyp/> (more in Section XVI). My notes and other information can be found here. Please do not hesitate to let me know when you need help. I do wish to work with you in order for you to have a stimulating and productive course.

Finally, it is important to check your NEO account regularly. I will be sending messages to you. At this time, professor messages are NOT being forwarded to your other e-mail accounts, so please physically check the NEO account.

Sincerely,

Dr. Wendy L. Keeney-Kennicutt  
Associate Director and webmaster, First Year Chemistry Program

My teaching philosophy is straightforward: I will be teaching you the way I would want to be taught - with enthusiasm, and with a passion for the subject combined with respect and understanding. My aim is to give each of you every opportunity to do your best in learning chemistry despite our large classroom setting. Chemistry is a subject that I have studied, practiced, taught and enjoyed since I was 17 years old - over 37 years. On my part, effective teaching involves time, dedication, patience, understanding, firmness, and a sense of humor. On your part, effective learning involves your participation inside and outside the classroom.

My job is to encourage you and give you every opportunity to be successful in this class and leave the class knowing some Chemistry. All of the sciences require more work and studying than most of you are used to, and Chemistry is no exception. I have specifically designed this course so that you can do well, even if you bomb an exam, providing you do all the work I assign, both during class and on your own time. The student evaluations on Pick-A-Prof are valid; I do assign a great deal of work: 2 kinds of homework, 4 writing assignments using Calibrated Peer Review and Turnitin.com, in-class quizzes, and, of course, lab with summaries and abstracts. However, this is not busy work, made to make your life miserable, but it provides you an opportunity to practice your chemistry skills and earn a good grade aside from the 3 exams and comprehensive final that we will have. This additional work (labs, lab quizzes, plus writing, in-class quizzes and homework) will make up a little over 47% of your grade. So you can be a terrible test taker and still do fine, if you do the work and come to class.

I know that I'm asking that you do a great deal of work. So, I have incorporated several things to make your life more agreeable.

- (1) I have dropped 3 labs from the syllabus, so you only have 7 labs, instead of 10.
- (2) I do think that you are better off taking our exams at the scheduled time. My regular exams are 60% multiple choice and 40% free response and have a review session. However, I know that you are very busy and circumstances can just crop up. To that end, my exam makeup policy is lenient. To take my makeup exam, you must send me an email giving me the reason (I expect the truth) for why you want to take the makeup, instead of the regularly scheduled exam. Reasons include the regularly approved university excuses (illness, a school-related trip, etc.), but also having to go to your sister's wedding, staying up all night with a sick roommate, having your alarm not go off or even just not being prepared. The slightly more difficult makeups are 10 days later, at 4pm on a Friday afternoon and are all free response exams, with no multiple choice.
- (3) I give weekly review sessions every Sunday. I know that it has been a long time since most of you have studied Chemistry. I also know that Chemistry is probably not your favorite subject. However, with a little help and support, you may surprise yourself as to how well you can do.
- (4) Our Instructor Assistant, Ms. Elky Almaraz, will be giving a weekly lab review to help you understand the labs, teach you how to write summaries and abstracts, help you finish up your lab reports, and get you ready for the next week's lab or quiz.
- (5) Besides my regularly scheduled office hours, I have an open door policy to answer all kinds of questions about the course, homework, lab or anything else. I am a TAMU Mentor. I also do pretty well at answering my emails in a timely way.

I hope you'll have a good semester and also learn a little chemistry.

Dr. K :)

## POLICIES

### I. Required Materials:

- (1) "General Chemistry", by Whitten, Davis, Peck and Stanley, 7th Edition, 2004.
- (2) "Experiences in Chemistry - I, 2<sup>nd</sup> Ed." M.L. Peck and V. Williamson, 2005
- (3) CSB/LAN-Plus, Version 7.1 or later, James D. Spain and Harold J. Peters, Electronic Homework Systems, Inc.
- (4) The lab notebook (8 1/2" x 11") perforated alternating white and yellow pages.
- (5) Calculator suitable to use on lecture exams. May not have multi-line screen (two lines are acceptable) nor extensive memory. (See later discussion.)
- (6) Approved eye protection. University and Departmental Regulations require that splash-proof, chemical goggles be worn by everyone present any time any experimentation is being conducted or any time chemicals or equipment are being moved by anyone in the laboratory. (The Graduate Chemistry Fraternity will be at the labs the first week of lab to sell suitable goggles at \$5 using cash or checks). Failure to wear goggles will result in expulsion from the laboratory for the experiment involved. If you forget, you will be able to rent them at the Stockroom window for \$4 with AggieBucks or for \$10 thru SIMS - so don't forget them! It would be a costly mistake!

### II. Optional Materials:

- (1) "Student Solutions Manual, General Chemistry," 7th Edition, W. Keeney-Kennicutt and Y.-N. Tang, 2004 (strongly recommended). It and our textbook are on reserve at the Library Annex.
- (2) See link to our textbook from our webpage - good student resources.
- (3) Visit <http://uwc.tamu.edu/handouts/> for help with writing (how to write abstracts, grammar, etc.) This link and others are also on our class webpage.
- (4) Laboratory apron, or a nonflammable lab coat. An apron or lab coat will be required in laboratory if your shorts or skirt do not cover your knees.

### III. Lecture Reading Assignments:

Lectures are designed to help you in developing an understanding of the material being emphasized. To get the most out of lecture, one should always read the appropriate sections before they are discussed in class. The reading assignments are shown in the calendar.

**IV. Lecture Bonus Opportunity Problems (BOPs):** A total of about 100 problems from the textbook are assigned to be handed in. They will be divided into 4 sets as we cover the material in class. The first three sets will be due on the Thursday following each exam; the last set will be due on the last day of class. You can turn them in late for 10% loss in points until the makeup for the exam is given. You must turn in the original problems, but you should keep a copy for your own use. You will be able to pick up your homework at a later date. Bonus points will be awarded and added to the "course average" according to the percentage of completed problems as shown below.

Percentage of problems completed correctly and turned in on time	<70%	70-89%	≥90%
Number of bonus points to be added to your course average	0	1	2

**V. ChemSkill Builder (CSB):** This is a system of computer-based lessons used as electronic homework. The assignments are given in both calendars. **For CSB LAN-Plus:** Minimum system requirements: Windows 95 - XP. See me if your copy's password is out of date; I'll give you a new password. You will be sending me your results file (.dat file) by email to my neo account ([k-keeney@NEO.tamu.edu](mailto:k-keeney@NEO.tamu.edu)). Do **NOT** email it to [k-keeney@tamu.edu](mailto:k-keeney@tamu.edu). For me, these are two different email addresses. The .dat file has the same name as your password and you'll find it in the CSB-temp folder on your C drive. Do not send the one that ends in .bak. That is your backup data file. NOTE: there is an identical data file in your CSB-Plus folder, but it has no data in it - **DO NOT SEND THAT ONE!** **Your work is due by Friday at midnight as per class schedule.** There are a total of 13 chapters due periodically.

Due Dates:	2/11	Chapters 1, 2, 3, 4, 6
	3/11	Chapters 5, 9, 11
	4/15	Chapters 12, 13, 10
	4/29	Chapters 7, 14 and everything must be in final form

You will get 3 pts per chapter if the **average** of its sections is ≥90%, 2 pts if ≥70%, 1 pt if ≥50% for a total of 39 points. You will also get 1 more point **per chapter** if you upload your data by midnight on Friday as per the calendar. You will get the point even if the work isn't complete. For sure, all chapters are due to be uploaded on Friday, 4/29, for a total of 52 points - half an exam grade.

### More on ChemSkill Builder:

Before starting, check your password on the slip of paper in your package. It may have expired. If so, see me and I'll give you a new one for free. If you are having money issues and cannot afford the program, see me as well.

### To install Chemskill on your personal computer (not a campus or a public computer):

Procedure 1: Follow directions in the package.

Procedure 2: If Procedure 1 fails (the Millenium version will fail), use My Computer to simply copy the two folders onto the CD, CSB-Plus and CSB-temp, onto your C drive. On the C drive, double click on the CSB-Plus folder, find and right click on the file labeled Chemskil or Chemskil.exe. Make a shortcut and drag it to your desktop. Alternatively, choose Send to Desktop and the shortcut will appear there. Then follow instructions on the package. **YOU WILL BE WORKING OFF-LINE.** When the programs asks you if you're working on-line, say **NO**.

The file you'll be sending me is the data file that has the same name as your password in the CSB-temp folder. NOTE: There will also be a similar file in the CSB-Plus folder but that has no real data in it - **don't use that one.** If you use a computer search for the file to send me, be certain it is the one in the CSB-temp folder.

In both Procedures 1 and 2, you can use the program on a different personal computer. This could occur if you wanted to take the program home with you for a weekend or holiday, or if your computer died. First copy your data file (the one in the CSB-temp folder that has the same name as your password) onto a floppy disk, blank CD, etc. Install the program on the new computer, then copy your data file into the CSB-temp folder newly created on the C drive. You should be able to proceed as normal. When you want to continue your work on the original computer, get the latest working copy of your data file from the CSB-temp folder on the second computer's C drive and recopy it into the CSB-temp folder on your original computer's C drive.

Note: it is always a good idea to keep a copy of your data file on a floppy somewhere in case something happens to your computer – it dies, gets a horrible virus, etc.

**To use the program on a public computer:** If you don't have a computer, or need to use the campus computers, you cannot use the version as sold in the stores. The university will not let you install the CSB program onto their computers. However, you must still buy the program to get the password – so no copyright laws are broken. Then I will give you a special copy of CSB that uses a CD and a floppy disk. The CD has a modified version of the CSB-Plus folder and the floppy has the CSB-temp folder, in which you'll find your working data file with the same name as your password. To operate, the CD and the floppy must both be in the computer. Using My Computer, double click on the CD icon, and double click on the CSB-Plus folder. You'll find the file, chemskil or chemskil.exe, and double click on it. The program should start.

When the due date arrives, you must email the data file that has the same name as your password in the CSB-temp folder AS AN ATTACHMENT to my NEO account:

[k-keeney@NEO.tamu.edu](mailto:k-keeney@NEO.tamu.edu), .

Do NOT email it to [k-keeney@tamu.edu](mailto:k-keeney@tamu.edu). For me, these are two different email addresses. If you don't know how to do this, drop by my office and I will show you.

One more thing - if your CSB is acting up, there is probably a virus on your computer. The program is very virus-sensitive.

**VI. Lecture Attendance:** I will not be taking attendance as such throughout the semester. However, to encourage you to attend class, there will be occasional in-class problems that will account for 4% of your course grade. See Section VII.

**VII. In-Class Team Problems:** During the semester, I will give 13 unannounced quizzes to be done in class by self-appointed teams, consisting of ~3-6 of your fellow students, sitting around you. Each quiz is worth 3 points, and only your best 10 quizzes will count. Each team will work together to solve the problem. Each student in the team will write down the complete solution on their own paper, then you will bring them forward. I will be grading them leniently; it will be fairly easy to get 1.5 out of 3 points. The purpose of the exercise is to encourage you to (1) come to class and (2) think about the subject matter as we go through the course. Quiz 1 is the results (4 letters) of the web personality quiz found at the bottom of our web page - more info on the webpage. Quiz 2 is the Information Card with personal information and a picture of you.

**VIII. Calibrated Peer Review (CPR):** Calibrated Peer Review (CPR<sup>®</sup>) is web-based software designed to promote writing and critical thinking in our classroom on topics important to chemistry. There will be 4 assignments and I will count your best three. Each CPR assignment will be worth 1/3 of an exam grade. To help you guard yourself against plagiarizing someone's work, your essays must also be submitted to Turnitin.com to check for plagiarism by the writing due date or you won't get credit. If you see that you indeed plagiarized, you can resubmit as many times as you wish. See additional handouts on Turnitin.com and CPR for more information. Feel free to drop by and have me look over your essay before submission.

Assignment 1: Plagiarism in TAMU Laboratories I

Part A (Write): Mon. 1/24 6am --Thurs. 2/3 11:50pm

Part B (Calibrate & Critique): Thurs. 2/3 11:50pm - Thurs. 2/10 11:50pm

Assignment 2: Measurement & Significant Figures III

Part A (Write): Mon. 2/14 6am - Thurs. 2/24 11:50pm

Part B (Calibrate & Critique): Thurs. 2/24 11:50pm - Thurs. 3/3 11:50pm

Assignment 3: Limiting Reactants

Part A (Write): Mon. 3/21 6am - Thurs. 3/31 11:50pm

Part B (Calibrate & Critique): Thurs. 3/31 11:50pm - Thurs. 4/7 11:50pm

Assignment 4: Phase Diagrams

Part A (Write): Mon. 4/11 6am - Fri. 4/21 11:50pm

Part B (Calibrate & Critique): Fri. 11/21 11:50pm - Thurs. 4/28 11:50pm

**IX. Lecture Exams:** There will be 3 exams (Exams 1, 2, and 3) given on the days indicated on the Calendar. Additionally, there will be a Final Exam and make-up exams. These exams will be a combination of multiple choice questions that will be machine graded and free response questions that will be hand graded. Lab quizzes are described later.

(A) Lecture Exams: These are 70 minute exams given during the regular lecture times. Each carries a value of 100 points with 60% multiple choice and 40% free response. Exam 1 will cover material into Chapter 16 of the textbook. Exams 2 and 3 will concentrate on the block of material covered after the previous exam. One or more review questions will also be included.

(B) Final Lecture Exam: The Final Exam will be a 2 hour, 170 point exam covering all the chapters taught during the semester. The free response part is worth 40 points. The schedules time for the Final Exam is Friday, May 6, from 12:30 to 2:30 p.m. **You must bring your student I.D. to the Final Exam.**

(C) Make-up Lecture Exams: There will be a make-up for each of the exams given during the semester if you miss any of them. The makeups are all free response exams. The makeup exam is scheduled 10 days after each exam at 4:00 pm on Friday (see syllabus for room). I require a written statement about the excuse for the absence - it can be e-mailed to me or given to me during class time. If the exam time conflicts with your other classes, please contact me immediately. The make-up exams will be at least as difficult as the regular exams.

**X. Grade Calculations:** In calculating the lecture grades, each of the three exams counts as 100 points for a total of 300 points; the CPR assignments are a total of 100 point; the CSB points are 50 points; the in-class work counts for a total of 30 points, while the Final Exam counts as 170 points. All scores used for grade calculations are carried to 3 decimal places, but posted as rounded integers.

$$\text{Lecture Average} = \frac{\text{Total of 3 Exams} + \text{CPR} + \text{CSB} + \text{In-Class Work} + \text{Final Exam}}{6.52} + \text{BOPs}$$

$$\text{Laboratory/Recitation Average} = \left[ \begin{aligned} &(\text{Sum of all reports, all Pre-Labs and all Post-Labs}) \\ &+ (\text{Sum of all Lab/Recitation Quizzes}) \\ &+ (\text{Lab/Recitation finals} + \text{Practical}) \end{aligned} \right]$$

divided by a factor that will result in your section's Lab/Recitation Average being between 80 and 86. For more information, see the end of this handout.

$$\text{Course Average} = \frac{(3 \times \text{Lecture Average}) + (\text{Laboratory/Recitation Average})}{4}$$

The ranges of the letter grade will be determined at the end of the semester. In the past for a typical semester, the Chem 101 grades were determined using: A,  $\geq 88$ ; B, 76-87; C, 63-75; D, 48-62. **This semester's ranges could be different.**

Students missing a small portion of the course, but having at least a 50 average, will receive a grade of "I" (Incomplete) if they request this grade and meet the University criteria for this temporary grade.

#### XI. Lecture Exam Administration:

(A) Check the exam seating assignment on the bulletin board outside Room 100 Held one day in advance. **Each exam has a different seating assignment.**

(B) Prior to the First Exam, purchase **FOUR** standard (8 1/2" x 11") gray scanning sheets (Form No.0-101607-TAMU) from the bookstore and turn them in **unmarked** to class. Samples of the scanning sheet will be displayed on the official Chemistry bulletin boards in Heldenfels. Also if you are left-handed or have a special seating request and want to be assigned a left-handed or table seat, I have the sign-in sheet or you can get a form in Room 116 near the door. Sign up as soon as possible in class.

(C) Arrive at the exam on time and wait outside until invited in. Cheating or bringing in material with intent to cheat will result in a zero for the exam or a more severe penalty, as determined by the Office of the Aggie Honor System ([www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/))

(D) Bring to the exam at least two sharpened #2 pencils, an eraser, and your TAMU I.D. card. Pencil sharpeners and calculators (with certain restrictions) may also be brought. There must be **NO** "sharing" of calculators during an exam. Any other items must be "enclosed" out of sight in a briefcase, pack, purse, or sack, **and** either stored under your desk or placed against the front wall before taking the assigned seat.

(E) Students can not use calculators that are programmable or have alphanumeric capabilities for the exams. Some of the acceptable and unacceptable calculators are listed on the bulletin board outside Room 100 Heldenfels. **Any student attempting to use an unacceptable calculator will receive a zero for the exam plus we will turn your name into the Office of the Aggie Honor System.**

(F) Students may not bring into the exam room any electronic device, capable of communicating with anything or anybody. This includes telephones, pagers, computers, etc. If you must have such a device with you, you must either put it in your backpack and put your backpack at the front of the room, or give it to me at the podium. We will return it when you finish the exam. We are not responsible if it is stolen – so just don't bring it to the exam. **If we find such a device on your person, you will receive a zero for the exam plus your name will be turned into the Office of the Aggie Honor System.**

(G) Follow the directions on the front page of your exam. **Do not write on the back of the scanner sheet.** In addition, note that the answers have to be recorded on the standard gray scanning sheet to be graded.

(H) During the exam, keep all work covered as much as possible. Talking or looking around the room will result in a withheld grade for the exam.

(I) Work carefully, but you must finish in the allotted time; exams handed in late will not be graded. Please remain seated quietly until asked to leave.

You will also be able to access your grades on the World Wide Web. More details in Section XVI. If your score is different from what you believe it should be, or if your score is not posted, please see me.

**Special announcements and schedule changes will be announced at the beginning of the lectures.**

**XII. Plagiarism:** Students are expected to be the sole source for any work submitted in their name. The utilization or submission of the work of others as your own is a violation of Texas A&M University scholastic dishonesty policies and is called plagiarism. If you are found guilty, you may receive a 0 on the assignment, an F in the course or worse, as determined by the Office of the Aggie Honor System ([www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)). As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. You are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research and knowledge cannot be safely communicated. The teaching assistants specifically look for copied work and will give zeros to work that has been copied. If you have questions regarding plagiarism, please consult the Texas A&M University Student Rules ([student-rules.tamu.edu](http://student-rules.tamu.edu)), under "Scholastic Dishonesty." In lab, you will be asked to sign a statement which will be attached to your reports.

#### XIII. AGGIE HONOR CODE

"An Aggie does not lie, cheat, or steal or tolerate those who do."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.

For additional information please visit: [www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)

On all our course work, assignments, or examinations at Texas A&M University, the following Honor Pledge shall be pre-printed and signed by the student:

**"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."**

#### XIV. Copyright:

The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems or study sheets, in-class materials, review sheets, and additional problem sets, notes, etc. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

## **XV. Review Schedule:**

I am giving weekly review sessions on most Sunday afternoons at 2 pm in Room 100 HELD, covering lecture and lab material, including information on writing with CPR and Turnitin.com. Check the calendar.

My Instructor Assistant (IA) will be giving a weekly review session on just lab material and will include information on writing lab summaries, abstracts and using Turnitin.com. The schedule will be given later.

## **XVI. Texas A&M Services for Students with Disabilities (845-1637):**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, either temporary (e.g. broken arm) or permanent (including a learning disability), please contact the Department of Student Life, Services for Students with Disabilities in Rm B118 of Cain Hall (Hours: 8am to 5:30 pm). If you have any questions, see me.

## **XVII. World Wide Web (<http://www.chem.tamu.edu/class/fyp/> )**

Included are (1) details on individual lecture and lab sections, and (2) a test-bank of selected multiple choice questions for each chapter, and (3) a math review. One special service is the ability to check your grades confidentially on the web, using WebCT VISTA. Go to [webct.tamu.edu](http://webct.tamu.edu) and click on WebCT Vista. Enter your netID and password to access your scores.

## **XVIII. Important Dates:**

January 17:	Martin Luther King, Jr. Day
January 21:	Last day to drop a course with no record.
January 24:	Beginning of Q drop. Last day to add a class or change sections.
March 4:	Midsemester Grades Due in Chemistry Department.
March 14-18:	Spring Break
March 25:	Reading day, no classes.
April 5:	Last day to Q-drop or to officially withdraw from the University. Last day to change Kinesiology 199 to S/U grade.
April 9:	Reading Day. No classes.
April 21:	Muster. Campus ceremony.
May 2:	Monday. Dead day. Classes meet but no major exams.
May 3:	Tuesday. Last day of Spring classes. Redefined day. Students attend Friday classes. Dead day..
May 4-5:	Reading days. No classes or examinations.
May 6:	CHEM 101, Sections 501-511 Final Lecture Exam: 12:30 a.m. - 2:30 p.m., Rm 100 Held

## **XIX. Miscellaneous Notes**

There will be TAs available in Room 116 HELD during the day (roughly 8:30-12:30 pm and 1:30-4:30 pm, Monday through Thursday, and mornings only on Fridays). See sign on door for hours. They will help with both lab and lecture questions.

Near the entrance to Room 116 in a small gray metal shelving unit on the table, you will find several forms: permission to attend a makeup lab, ask for special seating, to get credit for handing in your scantrons, have your scantrons regraded and pick up regarded scantrons. All forms must be taken to Room 412 HELD when filled out.

# **Your NEO Account:**

**Check your NEO account regularly for any messages from professors.**

**Our e-mails are ONLY being forwarded to your xxx.tamu.edu account.**

**I send out emails to your neo accounts regularly.**

**You will use my neo account:**

**k-keeney@neo.tamu.edu**

**ONLY to send me your CSB data files.**

**Use my other accounts: k-keeney@tamu.edu or Kennicutt@mail.chem.tamu.edu to communicate with me.**



# Tentative Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
1/16	1/17 <i>HOLIDAY</i> <i>Martin Luther King, Jr. Day</i>	1/18 <b>Introduction</b> <b>CHAPTER 1</b> The Foundations of Chemistry  Rd: pp. 1-45	1/19	1/20 <b>CHAPTER 2</b> Chemical Formulas & Composition Stoichiometry  Rd: pp. 46-87  <i>*Last day to drop courses with no record</i>	1/21 <i>*Last day to add new courses</i>  <i>*Beginning of Q Drop</i>	2/13	2/14	2/15 <b>CHAPTER 4</b>  Some Types of Chemical Reactions	2/16	2/17 <b>CHAPTER 4</b>  Some Types of Chemical Reactions	2/18 Last Day for BOPs Set I (10% penalty)  ***** <b>MAKE-UP EXAM 1</b> 4 pm Rm 100 Held
1/23	1/24	1/25 <b>CHAPTER 2</b>  Chemical Formulas & Composition Stoichiometry	1/26	1/27 <b>CHAPTER 3</b>  Chemical Equations & Reaction Stoichiometry  Rd: pp. 88-120	1/28	2/20	2/21	2/22 <b>CHAPTER 5</b> Atomic Structure  Rd: pp. 175-229	2/23	2/24 <b>CHAPTER 5</b> Atomic Structure	2/25
Weekly Review Session  Rm 100 Held 2pm						Weekly Review Session  Rm 100 Held 2pm					
1/30	1/31	2/1 <b>CHAPTER 3</b>  Chemical Equations & Reaction Stoichiometry	2/2	2/3 <b>CHAPTER 3</b>  Chemical Equations & Reaction Stoichiometry	2/4	2/27	2/28	3/1 <b>CHAPTER 5</b> Atomic Structure	3/2	3/3 <b>CHAPTER 6</b>  Chemical Periodicity  Rd: pp. 230-264	3/4 <i>*Midterm Grades due to the Chemistry Department</i>
Weekly Review Session  Rm 100 Held 2pm						Weekly Review Session  Rm 100 Held 2pm					
2/6	2/7	2/8 ***** <b>EXAM 1</b> *****	2/9	2/10 <b>CHAPTER 4</b>  Some Types of Chemical Reactions  Rd: pp. 121-172  <b>** BOPs DUE ** (Set I)</b>	2/11 <b>CSB Due</b> by midnight  Chapters: 1, 2, 3, 4, 6	3/6	3/7	3/8 ***** <b>EXAM 2</b> *****	3/9	3/10 <b>CHAPTER 7</b>  Chemical Bonding  Rd: pp. 27651-300  <b>** BOPs DUE ** (Set II)</b>	3/11 <b>CSB Due:</b> 5, 9, 11  No Review Session on Sunday, 3/12  NO CLASS NEXT WEEK  <b>SPRING BREAK!</b>
Exam Review Session  Rm 100 Held 2pm						Exam Review Session  Rm 100 Held 2pm					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
3/20 Lab Quiz Review 7pm Rm 100 Held	3/21	3/22 <b>CHAPTER 8</b> Molecular Structure & Covalent Bonding Theories Rd: pp. 301-347	3/23	3/24 <b>CHAPTER 8</b> Molecular Structure & Covalent Bonding Theories	3/25 <i>*Reading Day</i>  <i>*NO CLASSES</i>	4/17 Weekly Review Session Rm 100 Held 2pm	4/18	4/19 <b>CHAPTER 12</b> Gases	4/20	4/21 <b>CHAPTER 13</b> Liquids and Solids  Rd: pp. 477-532  <b>MUSTER</b>	4/22 Last Day for BOPs Set III  ***** <b>MAKE-UP EXAM 3</b> 4 pm Rm 100 Held
3/27 Weekly Review Session Rm 100 Held 2pm	3/28	3/29 <b>CHAPTER 8</b> Molecular Structure & Covalent Bonding Theories  <b>CHAPTER 9</b> Molecular Orbitals (Introduction only)	3/30	3/31 <b>CHAPTER 10</b> Reactions in Aqueous Solutions I: Acids, Bases, and Salts  Rd: pp. 367-394	4/1 Last Day for BOPs Set II  ***** <b>MAKE-UP EXAM 2</b> 4 pm Rm 100 Held	4/24 Lab Final Review Session Rm 100 Held 7pm	4/25	4/26 <b>CHAPTER 13</b> Liquids and Solids	4/27	4/28 <b>CHAPTER 14</b> Solutions  Rd: pp. 533-581  <b>** BOPs DUE ** (Set IV)</b>  ***** <b>EVALUATIONS</b>	4/29 <b>LAST DAY FOR CSB (include Ch. 7, 14)</b>
4/3 Weekly Review Session Rm 100 Held 2pm	4/4	4/5 <b>CHAPTER 11</b> Reactions in Aqueous Solutions II: Calculations Rd: pp. 395-424  <i>*Last day to Q-drop</i> <i>*Last day to officially withdraw</i>	4/6	4/7 <b>CHAPTER 11</b> Reactions in Aqueous Solutions II: Calculations	4/8	5/1 Weekly Review Session Rm 100 Held 2pm	5/2 <i>Dead Day</i>	5/3 <i>*Redefined Day</i> <i>*Students Attend Friday Classes</i> <i>*Dead Day</i>  <b>Office Hours:</b> 2pm - 5pm	5/4 <b>READING DAY</b> <i>No Classes</i>  <b>FINAL REVIEW:</b> 10 am -1pm Rm 100 Held	5/5 <b>READING DAY</b> <i>No Classes</i>  <b>Office Hours:</b> 2pm - 5pm	5/6 <b>FINAL EXAM</b> Sections 501-511  12:30 pm - 2:20 pm  Rm 100 Held  Last Day for BOPs Set IV
4/10 Exam Review Session Rm 100 Held 7pm	4/11	4/12 ***** <b>EXAM 3</b> *****	4/13	4/14 <b>CHAPTER 12</b> Gases Rd: pp. 425-476  <b>** BOPs DUE ** (Set III)</b>	4/15 <b>CSB Due:</b> 12, 13, 10						



# CHEMISTRY 101 Lab/Recitation

for

## SECTIONS 501 - 511

Dr. Wendy L. Keeney-Kennicutt

### Policy on Safety and Breakage

Before working in this laboratory/recitation portion of the course, every student must read the "Laboratory Safety" rules in the laboratory manual plus any Departmental Rules and agree in writing to abide by these rules. It is imperative for your safety that you and everyone around you strictly adhere to the Safety Rules.

Failure to comply with the safety regulations (*e.g.*, by not wearing eye protection at all times; by wearing open-toed shoes, short skirts or shorts without also wearing a labcoat or apron; by running an unauthorized experiment; or by removing chemicals or equipment from the lab) may result in dismissal from this portion of the course or deduction of points on your reports.

You will be utilizing equipment furnished by the Chemistry Department. It is your responsibility to properly maintain the equipment while it is in your care. If equipment that has been entrusted to you is not returned in satisfactory condition, you will be held responsible for it.

### Lab/Recitation Grading and Absence Policy

**Absences:** The following schedule gives the date that each experiment, quiz, recitation activity, etc., is to be completed. Excused absences must be reported to your instructor in a timely manner. The makeup for each lab will be the following week on Thursday at 5:30pm on the 4<sup>th</sup> floor of Heldenfels. You must fill out the Lab Makeup Form found on our Laboratory web page or in Room 116 HELD, get your TA or instructor to sign it, and bring it to Room 412 HELD no later than the Wednesday before the makeup. See the form for more details.

**Data Sheets:** A data sheet must be submitted at the end of the lab period to receive a grade for that day's experiment. The data sheet may not be graded in some sections; however, the Report Form for the corresponding experiment will not be graded if the data sheet is not submitted the day the experiment is conducted.

**PreLabs, Reports, PostLabs, and Abstract:** For each experiment you will receive a total score between 30 and 0. PreLabs (including a 3 pt one page summary) are worth 5 points; lab reports are worth 10 points; the post-labs are worth 5 points (unless stated otherwise); and a written abstract of the lab is 10 points. The Report Form **must reflect information obtained by you** while in the laboratory and recorded on your data sheets. The PreLab Exercises associated with each experiment are due at the door before you start the experiment. Report Forms, PostLabs and Abstract are usually due the week after the experiment was run. Neatness, grammar, spelling and completeness of your data sheets, PreLabs, Reports, PostLabs and abstract will be considered when points are assigned. **You must write in complete sentences.** Grammar and spelling count for 10% of the grade. Points will be deducted for reports not submitted on the date due. TA mailboxes are on the 4th Floor of Heldenfels, next to the elevator and stock room. Late Policy will be determined by your TA and me.

**More on the Abstract:** You will write an Abstract (100-200 words) for every lab. It will be turned in with the lab report and you will also submit it to Turnitin.com as a check for plagiarism. Your TA will give you more information about how to login. There is more general information in the syllabus section on Turnitin.com. Your TA will make recommendations and allow you to resubmit the following week for a better grade. You can learn more about writing an Abstract from our handout on abstracts and <http://uwc.tamu.edu/handouts/writing/> at the University Writing Center.

**Lab/Recitation Quizzes:** Quizzes (20 points each, usually 3 or 4 points per question) are scheduled at various times during the semester. The quizzes will reflect what you should have gained from previous weeks' experiments, what you should master before beginning the current week's experiment, your understanding of the exercises on the assigned CSB programs, your ability to utilize techniques and concepts, and your understanding of the recitation topics discussed in lab.

**Grades:** At the end of the semester the scores on all quizzes, prelabs, reports, postlabs, abstracts and written final (40 points) and Practical Final (10 points) will be totaled for each student and multiplied by a factor so that the class average will be between 80 and 86. Adjusted averages of greater than 100% will be treated as if they are exactly 100%.

**Plagiarism:** See XII. in the syllabus. Plagiarism in laboratory courses is common, largely because students think that the lab report is not as important as other assignments. NOT TRUE!! Academic dishonesty in lab as well as lecture will not be tolerated. So, please do your own work. Your data will be the same as your lab partner, and you can study together, but the writeup **MUST** be in your own words. The TA and I don't want to fail you because you copied someone else's work, but we will. Abstracts will be submitted to Turnitin.com to test for plagiarism. To each lab, you will attach a sheet of paper that says:

**"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work," and sign your name.**

**Schedule:** The schedule is as follows on the next page. There may be differences between this one and others. **THIS ONE IS THE CORRECT ONE FOR THIS CLASS AND THE ONE FOR WHICH YOU ARE RESPONSIBLE!**

Week of	Investigation	Report and Postlab Due	Tentative Recitation Topic	Calibrated Peer Review (CPR)	CSB	Lecture Exam
1/17	No Lab/Recitation Meeting this week.	-	-	All deadline times are Thursday night at 11:50pm Central Time	-	-
1/24	Introduction Lab Check-in & Lab Lecture on Safety Read the safety rules and agree in writing to know them or else you cannot do experiments.	-	Math Review & Significant Figures (handouts) Math Quiz & Standard Deviation Discussion on Open vs. Guided Inquiry Discuss Exp. #1	CPR Assignment 1A: Plagiarism in TAMU Labs I (Mon 1/24 - Thurs 2/3)	-	-
1/31	Exp. #1 - Are Labels Accurate or Precise? (An Open Inquiry Experiment)	-	Review: Open vs. Inquiry Labs, Standard deviation & rel. std. dev. Turnitin.com	CPR Assignment 1A: Write Assignment (Mon 1/24 - Thurs 2/3)	-	-
2/7	Exp. #4 - Soap Making. (A Skill Building Experiment)	#3	Review: Organic formulas, Bunsen Burner Operation, Vacuum Filtration	CPR Assignment 1B: Calibrate & Critique (Thurs 2/3 - Thurs 2/10)	1, 2, 3, 4, 6 due by midnight on Friday	Exam 1
2/14	Quiz 1	#4		CPR Assignment 2A: Measurement and Significant Figures I (Mon 2/14 - Thurs 2/24)		
2/21	Exp. #5 - Reactions of Calcium (A Guided Experiment)	-	Review: Graphing, Identifying gases, Use of Indicators, Purpose of the Experiment	CPR Assignment 2A: Write Assignment (Mon 2/14 - Thurs 2/24)	-	-
2/28	Exp. #6 - Recycling Aluminum Cans - (A Skill-Building Experiment)	#5	Review: Stoichiometry and Percent Yield, Hydrated Salts, Amphoterism, Review Bunsen Burner, Vacuum Filtration	CPR Assignment 2B: Calibrate & Critique (Thurs 2/24 - Thurs 3/3)	-	-
3/7	(day off due to CPR)	-			5, 9, 11 due by midnight on Fri.	Exam 2
3/14	SPRING BREAK	-	-			
3/21	QUIZ 2 Lab Review Sunday at 7pm	#6		CPR Assignment 3A: Limiting Reagent (Mon 3/21 - Thurs 3/31)	-	-
3/28	Exp. #10 - Shapes of Molecules and Ions (A Guided Experiment)	#10	Review: Lewis Dot Structures, Molecular Structure and Covalent Bonding  (Chapters 7&8, p.188 in labbook)	CPR Assignment 3A: Write Assignment (Mon 3/21 - Thurs 3/31)	-	-
4/4	Exp. #8 - Analysis of a Carbonated Beverage (A Guided Experiment)	-	Review: Solution Stoichiometry Acid-Base Titrations, Burets, Citric Acid Primary Std/Standardization using KHP (Chapter 11)	CPR Assignment 3B: Calibrate & Critique (Thurs 3/31 - Thurs 4/7)	-	-
4/11	Exp. #12 - Alka Seltzer®. An Application of Gas Laws. (A Guided Experiment)	#8	Review: Gas Laws, Stoichiometry with Gases, Collecting Gas Over Water	CPR Assignment 4A: Phase Diagrams (Mon 4/11 - Fri 4/22)	12, 13, 10 due by midnight on Fri.	Exam 3
4/18	QUIZ 3	#12		CPR Assignment 4A: Write Assignment (Mon 4/11 - Fri 4/22)		
4/25	Practical Final (10pts) & Written Final (40 points). Evaluations. All missing work, make-up finals, requests for the grade of "incomplete," etc., must be completed and all forms submitted before 5 pm 4/29 if they are to be in this semester's records.		-	CPR Assignment 4B: Calibrate & Critique (Fri 4/22 - Thur 4/22)	7, 14 and all of CSB due by 5pm on Fri.	-

# Common Writing Errors

(Thanks to Dr. Pat Lynch)

## Run-on Sentence:

**Incorrect:** *The strategy proved to be effective with all students, it was a favorite of many teachers.*

**Correct:** The strategy proved to be effective with all students; it was a favorite of many teachers. (You need to use a semicolon rather than a comma.)

## Inappropriate use of Apostrophe:

**Incorrect:** *It's use is common.* "It's" is the contraction for "It is"; the apostrophe does NOT denote the possessive case in this instance.

**Correct:** **Its** use is common.

It's = it is

Its = the possessive form of it

Hints: **DO NOT** use apostrophes for plural nouns (she gave it to her parents').

**DO** use apostrophes to indicate possession: (my mother's book - our mothers' books, except with "its").

## Agreement with pronouns:

**Incorrect:** *If the student loses **their** books . . .* This is incorrect, because the noun is singular (student) and your pronoun is plural (their).

**Correct:** If the student loses his or her books . . .

**They're, there, their:** **Correct:** They're going home. Their book is here. There is the house.

**Parallel structure in lists:** When writing a sequence, all items in the sequence should be the same format.

**Incorrect:** *The following are critical: **planning instruction, use good teaching, and make evaluations.***

**Correct:** The following are critical: **planning instruction, teaching effectively, and evaluating results.**

**Vague Pronouns:** *This method has been used effectively; **they** have found it useful with all grades.* Who are "they?"

## Do not use a colon after a verb or preposition.

**"Proven"** – avoid using this word in summarizing research. It is very rare that a single study will "prove" something. It may "indicate" or "suggest" but not prove. Similarly, "the study showed." The authors may have "found" certain results in this instance, but that does not show that something is a truth. It is best to avoid absolute statements altogether. This includes the following: all, none, never, always.

## Check out These Resources! (Also on our class web page)

1. Common Errors in English (<http://www.wsu.edu/~brians/errors/errors.html> )
2. Common Errors in Student Writing (<http://www.westminster.edu/staff/brennie/writerro.htm> )
3. Guide to Avoiding Common Errors in English (<http://www.choate.edu/Sports/dept/ng/courses/skills/gold.html> )
4. Common Writing Errors (<http://www.arc.sbc.edu/writingerrors.html> )
5. Common Writing Errors (<http://www.ucalgary.ca/UofC/eduweb/grammar/marking/alpha.htm> )
6. Avoiding Common Writing Errors (<http://iws.ccccd.edu/WriteStuff/errors.html> )
7. Notes on Common Writing Errors (<http://www.dartmouth.edu/~sullivan/CommonWritingErrors.html> )
8. Hit Parade of Errors (<http://www.utoronto.ca/hswriting/hitparade.htm> )
9. 20 Most Common Errors (<http://www.bedfordstmartins.com/lunsford/twenty.html> )
10. Writing Rules to Make You Smile: (<http://www.ruf.rice.edu/~bioslabs/tools/report/wrules.html> )

# How to Use Turnitin.com in our Class

As a faculty member at Texas A&M University, I know that many of you are unfamiliar with what constitutes plagiarism, commonly defined as the act of passing off someone else's work as your own. You will learn more about plagiarism at TAMU as you work on your first Calibrated Peer Review assignment.

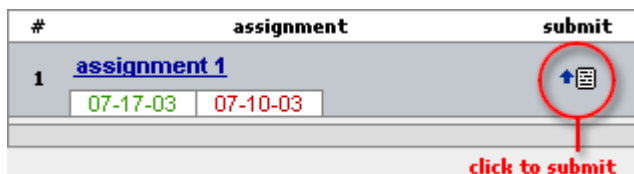
This semester, we will be using the website, Turnitin.com, as a monitor so that you can check your writing for plagiarism in two different types of writing assignments:

1. CPR assignments, and
2. Laboratory Experiment Abstracts

**Instructions for Turnitin.com can be found at [http://turnitin.com/static/training\\_support/tii\\_student\\_guide.pdf](http://turnitin.com/static/training_support/tii_student_guide.pdf).** You can also find this by going to <http://www.turnitin.com>, click on Training Materials underneath the login, and then click on Student User Guide. Below is the shortened version.

## How to Register Yourself in Our Class at Turnitin.com ([itsinfo.tamu.edu/turnitin/students.htm](http://itsinfo.tamu.edu/turnitin/students.htm))

1. Go to the website: <http://www.turnitin.com>
2. In the top right hand corner, click on "create a user profile."  
Step 1: Enter a valid email address – it would be better if you used a university approved one.  
Step 2: Enter and confirm a password.  
Step 3: Enter your first and last name, and country and state of residence if a US resident.  
Step 4: Using the pull-down menu, pick "student" as the type of user.  
Step 5: Click "I Agree" to the User Agreement.
3. For first time users, start the Class Enrollment Wizard or if you wish, simply click on Log into Turnitin.com.
4. Our Class ID for CPR assignments: 1233169  
Our Class Enrollment Password for CPR assignments: k-s05 (the 0 is the number, not the letter)  
Your TAs will give you the necessary Class ID and password for submitting your lab abstracts during lab.
5. You are now ready to submit a paper.  
To submit a paper, please login to Turnitin.com and click on the name of your class.  
You will be taken to your "class portfolio" page, which will look much like this:



To the right of the name of your first assignment will be a submit button. You can click on it to submit your first paper. You have the option of uploading your text by cut and paste or by file upload.

**Cut and Paste:** This is very straightforward. **DO NOT** add HTML tags; it is not necessary and will only confuse you when you look at the report.

**Uploading the file:** Type your essay title into the text box and click "Browse.." and the "Choose File" box will open so that you can locate the correct file on your computer. Click on the file you want; its name will appear in the text box, then click "Open." The file name and address will appear in the Browse box, and then hit "Submit." After submission, you will see the message: "Your paper has been submitted. Below is a digital receipt for your submission. A copy of this receipt will also be emailed to you. If you would like, print the receipt below for your records."

**You can resubmit your assignment as many times as you wish. The first time you submit, you should be able to immediately look at your "Originality Report."** After submission, click on "Class Portfolio." There is a small colored box to the right of the submission date. The color denotes how original your paper is. If it is gray, either the program hasn't finished checking or you have submitted more than twice. When you click on the box after your first submission, you'll see your "Originality Report." Any part of your text in red can be considered by me to be plagiarized IF it hasn't been properly cited. The program cannot tell if you have cited correctly. Even if you put the phrase in quotes, it will still turn up red. Don't worry - if that's the case, I will be able to tell. You can click on "Side-By-Side Version" near the top right hand corner to see your paper and the one to which it was compared.

Your work will be checked against internet sources and each other. Note: If you submit two papers for the same assignment, you will be checked against your own work and it will be all red - that's why you must resubmit your paper, not submit two different papers.

An acceptable paper for our assignments must be in the blue or green zone (less than 24% matching), unless the text has been properly cited. The program cannot recognize if you put quotes around text - it only recognizes phrases. If your essay is in the yellow, orange or red zone, and if you didn't cite properly, you must rewrite your paper and resubmit it. You will be allowed to revise as many times as you wish, up unto the deadline. However, I believe you can only see your revised Originality Report after your first resubmission, not subsequent ones.

The finished essay for CPR must then be submitted to Calibrated Peer Review program. Note: if you are sure that you haven't plagiarized, you can submit first to CPR, then to Turnitin.com.

The finished abstract for an experiment must be printed out and given to your TA in lab with the rest of your lab report.

Your essays for CPR and your abstracts for lab experiments must be submitted to Turnitin.com by the assignment deadlines or you will get a zero for the assignment, even if your work is original. The TAs and I will be checking everyone's work for each assignment to be sure (1) it was submitted in the time limits and (2) it passed the guidelines for plagiarism.

#### **How to use Turnitin.com for Calibrated Peer Review (CPR):**

All CPR assignments are due on a Thursday night at 11:50pm (Central Time) - except 4/21 (Muster). So the deadline for submitting your essay to Turnitin.com will be the same time that your essay is due to CPR, Thursdays at 11:50pm CT. Note that your submission is stamped with the date. The server time for Turnitin.com is Central Time. Hopefully, you will check yourself for plagiarism before that time, so you can rewrite if necessary. If I discover that you plagiarized the assignment or did not submit your essay to Turnitin.com on time, you will receive a 0 for that entire assignment which is worth 1/3 of an exam grade.

#### **How to use Turnitin.com for the Laboratory Abstract:**

Lab reports are due when you walk into your lab room, usually the next week. The abstract must be typed and attached to your lab report. We will be checking to see that you did check and correct, if necessary, for plagiarism after Thursday, 11:50pm CT. Note that your submission is stamped with the date. The TAs will also verify that the abstract you submitted in lab is the same one that you submitted as your final version to Turnitin.com. If the TAs or I discover that you plagiarized the assignment or did not submit your essay to Turnitin.com, you will receive a 0 for the abstract, which is worth 1/3 of your lab.

# What is An Abstract and How do I Write One?

Texas A&M University is actively encouraging all students to become better and more effective communicators. In any career, you will be expected to share your knowledge with your peers, your bosses and your employees. One skill involves explaining the essence of a project you have been working on to others. Writing an abstract involves distilling your project, paper, or experiment down to less than 200 words so that others can quickly read it, understand what you did and why you did it.

## What is an Abstract? (thanks to the TAMU Writing Center)

### An Abstract:

- is a stand-alone statement that briefly conveys the essential information of a paper, article, document or book;
- presents the objective, methods, results, and conclusions;
- has a brief, non-repetitive style, usually written using the past tense.

Many abstracts from papers are published alone in abstract journals or in on-line databases. Thus, an abstract might serve as the only means by which a researcher finds out the information in a paper. Moreover, a researcher might decide whether to read the paper or not based on the abstract alone. Because of this need for self-contained compactness, an abstract must convey the essential results of a paper or project.

Many publications have a specific style required for abstracts. This document describes general guidelines.

### Qualities of a Good Abstract

In doing any research, a researcher has an objective, uses methods, obtains results, and draws conclusions. In writing the paper to describe the research, an author might discuss background information, a literature review, a technical report or proposal and detailed procedures and methodologies. However, an abstract of the paper

- uses one or more well-developed paragraphs, which are unified, coherent, concise, and able to stand alone
- uses an introduction-body-conclusion structure in which the parts of the essay/report are discussed in order: objective, methods, findings, conclusions, and possibly a set of recommendations
- provides logical connections between material included
- should not contain background information, a literature review, or detailed description of methods
- normally does not have references to other literatures (if absolutely necessary, use a full citation)
- adds no new information but simply summarizes the report or experiment
- is intelligible to a wide audience

### What is the Style of an Abstract?

The style of an abstract should be concise and clear. Readers do not expect the abstract to have the same sentence structure flow of a paper. Rather, the abstract's wording should be very direct. To achieve this, you should

- avoid repetitions;
- generally use the past tense.

The abstract that we will use for our laboratory experiments is called an **Informational Abstract**. It must

- communicate contents of reports
- include purpose, methods, scope, results, conclusions, and recommendations
- highlight essential points
- are short--from a paragraph to a page or two, depending upon the length of the essay or report (10% or less of the essay or report)
- allow readers to decide whether they want to read the essay or report

## How Do You Write an Abstract?

The process of writing an abstract involves boiling down a whole paper into one paragraph that conveys as much new information as possible. One good way of writing an abstract is to start with a draft of the complete paper (or have the finished lab report in front of you) and do the following:

- highlight the objective and the conclusions that are in the introduction and the discussion parts of the paper
- bracket information in the methods section of the paper that contains keyword information
- highlight the results from the discussion or results section of the paper
- compile the above highlighted and bracketed information into a single paragraph
- condense the bracketed information into the key words and phrases that identify-but do not explain-the methods used
- delete extraneous words and phrases
- delete any background information
- rephrase the first sentence so that it starts off with the new information contained in the paper rather than the general topic. One way of doing this is to start off the first sentence with the phrase "this paper" or "this study"
- revise the paragraph so that the abstract conveys the essential information and has a terse style

### Source of Information:

Purdue University Online Writing Lab. < <http://owl.english.purdue.edu/> > 24 June 2000.

Wilkinson, Antoinette Miele. *The Scientist's Handbook for Writing Papers and Dissertations*, 1991.

## What I expect from your abstract:

An abstract is not just a summary of what you did in lab; it is more than that. An abstract puts the lab into context. It is a very brief factual overview of your entire experiment. It tells the reader **WHAT** you did, **WHY** you did it, **HOW** you did it, **WHAT** you found and **WHAT** it means. The abstract should briefly state the purpose of the research (introduction), how the problem was studied (methods), the principal findings (results), and what the findings mean (discussion and conclusion). Be descriptive but concise. We will use a single format consisting of a **one paragraph** with seven parts (which may be combined):

1. Title
2. Introduction/ Background
3. Objective/Hypothesis
4. Methods used
5. Important Results
6. Discussion
7. Conclusion

**Each section should only be one or two sentences long and the entire abstract must not exceed 200 words.**

### **Title**

Search engines use the title to find key-word matches. Since we are practicing writing abstracts for the “real” world, your title should be as specific as possible.

If we look at Experiment 16 “Enthalpy of Reactions” as an example, a better, more specific title for the abstract might mention acid-base reactions, coffee-cup calorimeters and Hess’ Law to give the reader a more clear idea of what the lab entailed. **Long, descriptive titles are the rule in scientific writing.**

### **Introduction/Background**

This is your opportunity to make your case that this experiment is demonstrating an important scientific principle or problem, i.e., why this experiment is important.

### **Objective/Hypothesis**

Now that you have stated what broad area of science your work covers, it’s time to get more specific. In this section, you should answer the following questions.

- What did you hope to accomplish with this particular study?
- Why is this particular problem of interest?

## Methods Used

You cannot rehash the methods stated in the lab manual because you will run out of words. Your readers are only interested in what techniques you used.

For example, in Experiment 16, you used a coffee cup calorimeter with certain acids and bases; some were weak and some were strong. Your reader does not care to know what brand of Styrofoam cup you used, or where the hydrochloric acid was purchased. **No one should be able to reproduce your experiment from your abstract alone.**

## Important Results

In nearly every experiment, a series of calculations lead to one final, important result. The abstract only contains the final result of those calculations. In Experiment 16, the result is that specific equations (what are they?) and their respective enthalpies can be added together to get certain results.

**Don't forget significant figures when reporting your results.** If the lab manual calls on you to calculate a number from class data, report the class average rather than your individual result. Be sure to include the standard deviation when reporting averages.

## Discussion

This is a simple one sentence explanation of the meaning of your results. Are your results consistent with your initial hypothesis? Why or why not? In Experiment 16, you were able to demonstrate Hess' Law – why is that important?

## Conclusion

A good abstract draws conclusions that relate back to the objective. The best abstracts relate the conclusions to the background as well. What is *your* interpretation of what these results mean? Why should anyone care about your findings?

For instance, suppose you worked on a project that successfully used vaccinations to treat Alzheimer's disease in rats. You would probably want to say something in the conclusion about the implications of your work for treating human Alzheimer's disease.

Sometimes, however, you only have ordinary data to report. Report your conclusions even if they seem obvious or unimportant.

Once you get used to abstracts, they are relatively easy to write. They seem to have a plug-and-chug format where all you have to do is put the appropriate information into the right slot. For beginning abstract writers, however, that "simple" paragraph can be formidable to write. Don't feel bad if you have to prepare multiple drafts. Even professional writers don't get it right the first time. **Ask your TA to critique a rough draft if you have any doubts. That's what the HELP DESK is about!**

(Thanks to Mr. Yasha Hartberg, Assistant Lecturer, TAMU Biochemistry & Biophysics and [http://www.uaf.edu/csem/ashsss/abstract\\_writing.html](http://www.uaf.edu/csem/ashsss/abstract_writing.html))

Here are more links to Writing Abstracts Effectively:

<http://uwc.tamu.edu/handouts/writing/wrabstract.html> (TAMU Writing Center)

[http://www.wisc.edu/writing/Handbook/SciRep\\_Abstract.html](http://www.wisc.edu/writing/Handbook/SciRep_Abstract.html)

<http://www.nmas.org/JAhowto.html> (see abstract)

<http://classweb.gmu.edu/biologyresources/writingguide/Abstract.htm>

<http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html> (see abstract)

<http://newarkwww.rutgers.edu/guides/chemabs.htm> (Chemistry related)

[http://www.kon.org/Write\\_a\\_Winning\\_Abstract.htm](http://www.kon.org/Write_a_Winning_Abstract.htm) (general help for students)

<http://www.ruf.rice.edu/~bioslabs/tools/report/wrules.html> (fun writing rules)