

Syllabus
Chemistry 1225 - General Chemistry Lab II
Spring 2020

Instructor: Dr. Sushma Saraf
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Mailbox: 1504 HEB
Office: 1475 Gauss Haus

Required Text: Experiments in General Chemistry Featuring MeasureNet® (2nd Ed.)
or the CHEM 1215/1225 Custom Lab Manual from the University
campus bookstore

Office Hours: Wednesday 12:00 - 1:00 PM
Thursday 10:00 AM - 11:00 AM

*You can always email to arrange an appointment for any questions you
have outside of the scheduled office hour times listed above.*

Administrative

Assistant/Secretary: Jiliane Brandol - Office: TBBC 2420

Co/Pre-requisites: CHEM 1215 is a pre-requisite for CHEM 1225
CHEM 1220 is a pre-requisite or co-requisite for CHEM 1225

Course Dates: Labs begin the week of January 13th and end the week of
April 6th.

Credit Hours: 1 credit hour

Components: This course will consist of online lectures (instructional
videos located on Canvas) and one 3-hour lab per week

Course Goals: At the end of this course, you will...

- 1) Through participation in hands-on, tangible laboratory experiments, have an enhanced understanding of core General Chemistry II concepts.
- 2) Be able to selectively employ basic laboratory techniques in conjunction to answer "open-ended" questions.
- 3) Be competent with basic laboratory techniques, including and not limited to:
 - Thermodynamics
 - Kinetics
 - Determination of acid and base dissociation constants (K_a/K_b)
 - Buffers
 - Electrolysis

You are responsible for all information contained in this syllabus

- Identify an unknown chemical based on all techniques from both CHEM 1215 and CHEM 1225
- 4) Obtain a deeper level of proficiency with scientific writing
 - 5) Obtain a more comprehensive understanding of proper laboratory safety and best practices

Communication: Important information for the course will regularly be sent out through **weekly Announcements on the Canvas course site**. You are responsible for any information communicated in this way and should check Canvas on a regular basis. If you need to contact me, **email me directly at s.saraf@utah.edu**. Please do not send me messages through Canvas as I will not likely receive them.

Teaching Assistants: **TA office hours are held in General Chemistry Help Room located in HEB 1316**. A schedule of all TA office hours will be posted on the doors. Any TA in HEB 1316 should be able to offer assistance. ***This is a great place to get extra help!***

Lab Lectures: Lab lectures will be presented via pre-recorded videos, which can be found on the Canvas course page under “**Lab Lecture Videos**” in the “**Modules**” tab. **The Lab Schedule**, located on the Home Page of Canvas for this course under Course Information and Materials, and **indicates the week during which each lab lecture video should be watched. Videos should be viewed before their related pre-lab quizzes and experiments**. You may need to download the videos from Canvas to watch them, in which case you will also need Quicktime installed on your computer.

Labs: Labs are held on the 1st floor of HEB in the room designated for the section in which you are registered. **You MUST attend the lab section (and room) for which you registered. You cannot switch lab sections.**

Lab Schedule: The **Lab Schedule for the semester can be found on Home Page of Canvas for this course under Course Information and Materials**. This schedule gives the **due dates of all assignments, when videos should be watched, and the experiments performed**. It is your responsibility to be familiar with and to adhere to this schedule (*Note: The Lab Schedule contains much more information than the schedule automatically generated by Canvas*).

Safety: **Your safety is of primary concern.** The **Safety Guidelines Agreement is located in the “Modules” tab on Canvas under “Safety.”** You must read and understand all the presented safety rules before entering lab. To confirm that you have read, understood and agree to these guidelines, you are asked to **bring a signed copy of the last page of the Safety Guidelines Agreement to your first lab.** You will not be allowed into lab unless you provide a signed copy of the Safety Guidelines.

The **online safety quiz** (more information below) will also test your knowledge of the information presented in the Safety Guidelines Agreement and the syllabus for this course. ***Any student who is pregnant or has a medical condition that could put themselves or others at risk in the laboratory should consult with a doctor and the professor before taking part in this course.***

Required
Materials:

You must obtain a hard copy of the text: **Experiments in General Chemistry Featuring MeasureNet® (2nd Ed.) or the Custom Lab Manual** from the University campus bookstore. Either of these lab manuals are acceptable for use in this course. You may acquire an electronic (pdf) copy of the text, however, you will be held responsible to print out the specific experiment pages AND the appendices required for each experiment.

Safety glasses meeting the ANSI Z87.1 specification, a **100% cotton lab coat** and a **combination lock** (one per group) are required in this course. Safety glasses and lab coats can be purchased from the American Chemical Society (ACS) Student Affiliates who will be present in the chemistry lobby during the first week of lab. The exact times will be sent out to you via Canvas announcement. The campus store also sells safety glasses and lab coats (100% cotton required) and of course, you can always purchase these items online. Some locks are available for free check-out from the general chemistry stockroom on the first day of lab. However, we may run out at any time.

Late-Policy: During the first 15-20 minutes of laboratory you will receive detailed information regarding safety procedures and safe handling of chemicals for each experiment. It is important to arrive on time to receive this information. **If you are 45 minutes or more late to lab you will not be allowed to participate in lab and receive a 0 for lab that day.** If you are ***30 minutes late to lab your TA has the authority to***

determine whether you will be allowed to participate in lab based on important safety information you missed during the pre-lab lecture. If you are consistently late every week you may be asked to leave laboratory which can result in a failing grade.

Preparation for the Laboratory:

1. For your safety, **never bring food or beverages into the lab.**
2. **Always dress accordingly.** For your safety, in order to prevent burns and toxic chemical exposures: shorts, miniskirts, capris, bare midriffs, sandals and other shoes that do not completely cover your feet are not permitted. You must have **full-length pants** or something equivalent that extends all the way to the tops of your shoes (no skin exposed when you are standing). **Closed toed shoes** (no skin exposed). Clothes can be damaged in the lab so don't wear your favorite outfit. **100% Cotton Lab Coats are required** and can be purchased from the ACS Student Affiliates, the campus store or online. **Confine long hair.**

Anyone who does not meet the above lab dress code safety requirements cannot be allowed to participate until they are properly dressed and will be asked to leave. If you are excluded from lab because of being improperly dressed and you cannot get properly dressed in time to finish the lab, **it will count as a missed lab resulting in a zero for that experiment.** You cannot be given extra time to finish the lab beyond the scheduled lab time if you need to change. Therefore, it is important to remember to come dressed accordingly for participation.

Eye protection is always required. You can purchase approved (ANSI Z87.1) **safety glasses or goggles** at the campus store, online or from the ACS Student Affiliates who will be present in the main chemistry lobby/atrium during the first week of lab. Approved (ANSI Z87.1) safety glasses are the minimum eye protection required. You may wish to purchase chemical splash goggles meeting the ANSI Z87.1 specification instead of glasses. Goggles are a bit more cumbersome to wear but provide better protection for your eyes in the event chemicals splash onto you. **Repeated failure to keep glasses/goggles on during lab will result in a student being asked to leave lab and can result in a failing grade for the course.**

3. **Bring a combination (NOT KEY) lock.** Some locks are available for free check-out from the general chemistry stockroom however, these tend to go quickly. You will be working in groups with a partner and **only one lock will be needed per group.**
4. Bring your Laboratory Manual (see required text on the first page of this

syllabus) or a hard-copy print out of the experiment to be conducted in lab that day.

5. Before coming to the laboratory, **read the experiment** carefully, **watch the appropriate lab instructional videos** as indicated on the lab schedule and complete the **online pre-lab quiz**. Prepare the appropriate data tables in which to collect your data if needed.
6. Familiarize yourself with the chemicals you will be using in lab each week and their associated hazards. This information can be found by looking up the MSDS or SDS for each chemical. See the safety guidelines packet for more information about how to do this.
7. **Arrive to lab on time!** If you are more than 15 minutes late to lab, you will miss the pre-lab lecture which contains important safety information on handling chemicals for that day and general instruction.

If you arrive late due to an unforeseen circumstance, you will need to start the experiment on your own or with someone else who arrived late, if there is available space. Unfortunately, you cannot be guaranteed extra time or space to complete the experiment if you are late.

8. **Do not use personal electronic devices** (cell phones, laptops, tablets, etc.) in the laboratory. Such devices can be easily damaged or ruined by fire, chemicals, water, etc. Additionally, chemical contamination of such devices is likely in a laboratory setting and can pose serious health safety hazards.
9. You will choose a partner on the first day of lab (**labs begin the week of Jan 13th**). You will work with that person for the rest of the semester. Do not ask to switch partners unless there is a concern of personal health and safety. An important learning goal for this course is **communication and teamwork**. You are encouraged to communicate and work through any difficulties to help develop these skills. ***The data you collect will be the same for both of you. However, your lab reports should not be. The work in lab is done with partners but your lab report must be done individually.*** **Plagiarism is taken very seriously and will be dealt with according to University Academic Dishonesty Policy.**

Academic Dishonesty

By submitting an assignment, you are representing that it is your own work and that you have followed the rules associated with the assignment. Incidents of academic misconduct (including cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating on an assignment) will be dealt with severely, in accordance with the Student Code (<http://www.admin.utah.edu/ppmanual/8/8-10.html>). A single instance of academic misconduct may result in a failing grade for the course. Multiple instances of academic misconduct may result in probation, suspension or dismissal from a

program, suspension or dismissal from the University, or revocation of a degree or certificate.

Lab Reports:

Lab reports are found in your lab manual (or on Canvas for those experiments that are not in the lab manual) **at the end of the experimental procedures**. These must be filled out and turned in on the pages from the manual. **You do not need to answer the Post or Pre-Lab Questions from the Lab Manual**. Any plots that are needed to complete the lab report should be turned in with the report. Plots that accompany the lab reports must be created by you in excel or a similar program and properly labeled. Both effort and correctness will be considered in the grading of lab reports. Show all work and clearly label everything! Always include units. **There are no makeups for missed labs. Your best 9 lab reports out of 11 will be used to calculate your grade** (Your two lowest lab report scores will be dropped). **You cannot submit a lab report for a lab that you did not attend** (see academic dishonesty policy). **Lab reports must be turned in to your TA by the beginning of the following week's experiment (within 15 minutes of the lab's start time)**. If you cannot attend the next week's experiment, you must make arrangements to hand in your lab report BEFORE the normal deadline. You can do so by **emailing your lab report directly to your TA as a pdf attachment**. Late lab reports are not accepted, except under extreme circumstances (illness, etc.). In those cases, the professor (not your TA) MAY allow a lab report to be turned in late with appropriate documentation. **(15 points each)**

Exp. 22 P. Proposal: Due in lab the **week of Feb 3rd** at the beginning of your normal lab time (first 15 minutes) **(10 points)**

Exp. 32 P. Proposal: Due in lab the **week of Mar 16th** at the beginning of your normal lab time (first 15 minutes) **(10 points)**

****Procedure Proposal Scores are Not Dropped****

Checkout Points: Maintaining a clean lab area is essential to safety and performing accurate chemistry. **You must clean up and check out of your lab at the end of every lab period with your TA**. Your TA will examine your lab area to ensure it is completely clean and everything is put away before you leave. Once they have ensured that your area is clean and marked you on their checkout sheet, you will receive **2 points** for that day. Failure to check out with

your TA properly will result in forfeiture of those points. ***It is YOUR responsibility to ensure that you clean up and checkout and that the TA marks you down for doing so. 9 checkouts are needed for full credit.*** However, if you attend 10 or all 11 labs and properly check out/clean up, you will receive the additional 2 or 4 points respectively as bonus points. Earning the checkout points for Exp. 32 involves performing a “drawer checkout” with your TA in addition to the normal cleaning up/checking out. **(2 points each lab)**

Pre-Lab Quizzes: For most experiments, you will be required to complete pre-lab quizzes. These will be online through the Canvas system and **must be completed on Canvas by 5 PM Wednesday the same week as the corresponding experiment.** This deadline is for **EVERYONE regardless of the section you are registered for.** You will have **2 attempts** with a maximum of **1 hour for each attempt** to complete the quiz. These quizzes will test your knowledge on the material, which goes with the experiment you are about to perform. This material is covered in the lab manual itself as well as the video lectures, but at times you may wish to refer to your Chemistry 1220 textbook as well. It is highly recommended to **watch the Lab Lecture Video before attempting the quiz for your best chance at success.** All quizzes are open at the beginning of the semester. There will be **no makeups for quizzes.** Your best **6 out of 7 quizzes will be used to calculate your grade.** There are **no pre-lab quizzes for Exp. 19, Exp. 22, Exp. 18, or Exp. 32.** There are 6 total pre-lab quizzes. **(5 points each)**

Safety Quiz: Due on Canvas by **5 PM on Wednesday January 22nd.** This quiz is given online through Canvas and is separate from the pre-lab quizzes described above. It will test your knowledge of the information presented in the Safety Guidelines packet that is posted under “Files” on Canvas as well as the information presented in this syllabus. **This quiz cannot be dropped.** You will have **2 attempts** with a maximum of **1.5 hour for each attempt** to complete the quiz. **(5 points)**

Syllabus Quiz: Due on Canvas by **5 PM on Wednesday January 22nd.** This is quiz is given online through Canvas and is also separate from the pre-lab quizzes described below. It will confirm that you have read through this syllabus, know where to find resources, and understand the course outline/guidelines. **This quiz cannot be dropped.** You will have **2 attempts** with a maximum of **1 hour for each attempt** to complete the quiz. **(5 points)**

Lab Make-Ups: There are **No Lab Make-Up Labs**. Your best 9 out of 11 lab reports will be used to calculate your grade to accommodate for any unforeseen circumstances that may arise during the semester.

Lab Final: There is **NO LAB FINAL for CHEM 1225**.

Safety Guidelines: **You must bring a signed copy of the last page of the Safety Guidelines Agreement with you to the first day of lab.** The Safety Guidelines can be found on the Canvas course page under "Modules." You will not be permitted into the lab unless you provide this signed document. **(0 points)**

Grading:	Exp. 22 Procedure Proposal	10 pts
	Exp. 32 Procedure Proposal	10 pts
	Lab Reports (9 @ 15 points each)	135 pts
	Checkout Points (9 @ 2 points each)	18 pts
	Pre-lab Quizzes (6 @ 5 points each)	30 pts
	Safety Quiz	5 pts
	Syllabus Quiz	5 pts
	Total:	<hr/> 213 pts
	Bonus: Attended and Checked Out of 10 Exp	+2 pts
	Attended and Checked Out of 11 Exp	+2 pts

Grades will be entered on Canvas throughout the semester. You should double-check the entered grades for accuracy on a regular basis. If you believe there to be an error, you should contact your TA immediately with your concern. For this reason, (and others) it is a good idea to **save your graded lab reports**. Any concerns about quiz grades should be brought to the professor instead of your TA.

Final grades will be assigned based on a scale no harder than the following:

93 and above:	A
90 to <93:	A-
87 to <90:	B+
83 to <87:	B
80 to <83:	B-
77 to <80	C+
73 to <77:	C
70 to <73:	C-
67 to <70	D+
63 to <67	D
60 to <63	D-
<60	E

You are responsible for all information contained in this syllabus

Diversity/Inclusivity Statement

My intent for this class is to create a space where students feel included, heard, and respected, and that students' diverse identities and backgrounds are valued and viewed as an asset. We all come to this course with unique life experiences, and there will be diversity of perspectives in our discussions. This diversity is our strength as we strive to communicate and connect across difference and build an inclusive and equitable learning community.

Wellness Statement. Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for *Student Wellness at www.wellness.utah.edu or 801-581-7776.*

Campus Safety. The University of Utah values the safety of all campus community members. To report suspicious activity, call campus police at [801-585-COPS \(801-585-2677\)](tel:801-585-COPS). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the *Center for Disability & Access (CDA), 162 Olpin Union Building, 801-581-5020.* CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability & Access.

Addressing Sexual Misconduct. **Title IX** makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the *Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066.* For support and *confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).*

Pronouns. Class rosters are provided to the instructor with the student's legal name as well as "preferred first name" (if previously entered by you in the Student Profile section of your CIS account, which can be managed at any time). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class or on assignments. Please advise me of any name or pronoun changes so I can help create a learning environment in which you,

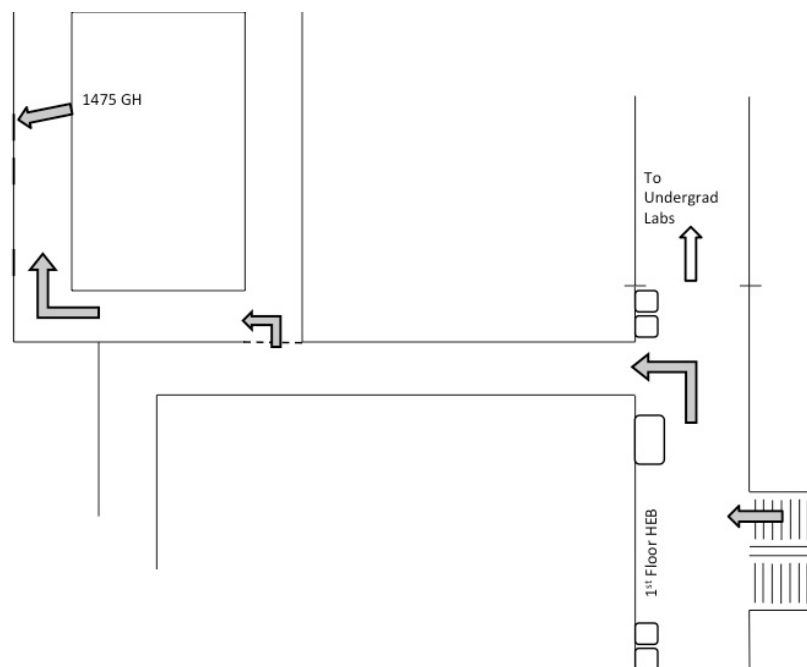
your name, and your pronoun are respected. If you need any assistance or support, please reach out to the LGBT Resource Center.

https://lgbt.utah.edu/campus/faculty_resources.php

Accommodations for Student Athletes. No special accommodations will be made for members of club sports. Varsity athletes will be accommodated, but it is the responsibility of the athlete to communicate with the instructor about making up assignments as well as about any grade concerns.

**This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Lab Schedule to accommodate the needs of our class. Any changes will be announced via your university listed email and/or posted on Canvas under Announcements.*

**Map of 1st Floor HEB - Arrows indicate how to find Saraf's office
1475 GH (located in the NMR Grant Center)**



Chemistry 1225 - Spring 2020

Instructor: Dr. Sushma Saraf

Lab Schedule (*Note: There are NO MAKEUP LABS*)

Week of...	Videos to Watch	Wednesday	Thursday	Friday
Jan 6 th - 10 th	1) Intro to CHEM 1225 2) Intro to MeasureNet	No Lab	No Lab	No Lab
Jan 13 th - Jan 17 th	1) Exp. 19	Exp 19 - Thermal Energy Associated with Phys and Cheml Changes Safety Guidelines Form Due in Lab	Exp 19 - Thermal Energy Associated with Phys and Chem Changes Safety Guidelines Form Due in Lab	Exp 19 - Thermal Energy Associated with Phys and Chem Changes Safety Guidelines Form Due in Lab
Jan 20 th - Jan 24 th	1) Exp. 17 2) Intro to Self-Directed Experiments 3) Exp. 22	Exp 17 - Colligative Properties Exp. 19 Lab Report Due Exp. 17 Pre-Lab Quiz Due SAFETY QUIZ DUE SYLLABUS QUIZ DUE	Exp 17 - Colligative Properties Exp. 19 Lab Report Due	Exp 17 - Colligative Properties Exp. 19 Lab Report Due
Jan 27 th - Jan 31 st	1) Exp. 23	Exp 23 - Chemical Kinetics Exp. 17 Lab Report Due Exp. 23 Pre-Lab Quiz Due	Exp 23 - Chemical Kinetics Exp. 17 Lab Report Due	Exp 23 - Chemical Kinetics Exp. 17 Lab Report Due
Feb 3 rd - 7 th	1) Exp. 25	Exp 25 - Rxn Equilibrium Exp. 22 P.P. Due Exp. 23 Lab Report Due Exp 25 Pre-Lab Quiz Due	Exp 25 - Rxn Equilibrium Exp. 22 P.P. Due Exp. 23 Lab Report Due	Exp 25 - Rxn Equilibrium Exp. 22 P.P. Due Exp. 23 Lab Report Due
Feb 10 th - 14 th	1) Exp. 24	Exp 24 - Le Chatelier's Exp. 22 P.P. Returned Exp. 25 Lab Report Due Exp 24 Pre-Lab Quiz Due	Exp 24 - Le Chatelier's Exp. 22 P.P. Returned Exp. 25 Lab Report Due	Exp 24 - Le Chatelier's Exp. 22 P.P. Returned Exp. 25 Lab Report Due
Feb 17 th - 21 st	None	Exp 22 - Dystan Medical Supply Company Exp. 24 Report Due Mid-Semester Quiz/Survey	Exp 22 - Dystan Medical Supply Company Exp. 24 Report Due	Exp 22 - Dystan Medical Supply Company Exp. 24 Report Due
Feb 24 th - 28 th	1) Exp. 26 2) Exp. 32	Exp 26 - K_a or K_b Exp. 22 Dystan Lab Report Due Exp. 26 Pre-Lab Quiz Due	Exp 26 - K_a or K_b Exp. 22 Dystan Lab Report Due	Exp 26 - K_a or K_b Exp. 22 Dystan Lab Report Due
Mar 2 nd - 6 th	1) Exp. 27	Exp. 27 - pH and Buffers Exp. 26 Lab Report Due Exp. 27 Pre-Lab Quiz Due	Exp 27 - pH and Buffers Exp. 26 Lab Report Due	Exp 27 - pH and Buffers Exp. 26 Lab Report Due
Mar 9 th - 13 th	None	Spring Break -No Lab!	Spring Break - No Lab!	Spring Break - No Lab!
Mar 16 th - 20 th	1) Exp. 18	Exp 18 - Soaps and Detergents Exp. 27 Report Due Exp. 32 P.P. Due	Exp 18 - Soaps and Detergents Exp. 27 Report Due Exp. 32 P.P. Due	Exp 18 - Soaps and Detergents Exp. 27 Report Due Exp. 32 P.P. Due
Mar 23 rd - 27 th	1) Electrolysis	Electrolysis Lab Exp. 32 P.P. Returned Exp. 18 Lab Report Due Electrolysis Pre-Lab Quiz Due	Electrolysis Lab Exp. 32 P.P. Returned Exp. 18 Lab Report Due	Electrolysis Lab Exp. 32 P.P. Returned Exp. 18 Lab Report Due
Mar 30 th - Apr 3 rd	None	Exp 32 - What is in this Container? Drawer Checkout Electrolysis Lab Report Due	Exp 32 - What is in this Container? Drawer Checkout Electrolysis Lab Report Due	Exp 32 - What is in this Container? Drawer Checkout Electrolysis Lab Report Due
Apr 6 th - 10 th		No Exp Exp. 32 Lab Report Due	No Exp Exp. 32 Lab Report Due	No Exp Exp. 32 Lab Report Due
Apr 13 th - 17 th		No Labs!	No Labs!	No Labs!
Apr 20 nd - 24 th	Last Day of Classes! Tuesday April 21			