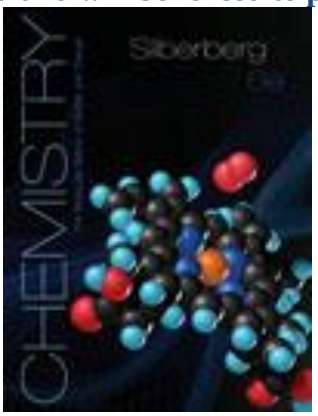
CHM 2045	General Chemistry	Fall 2012

Sections	Class Period	Instructor	Office	Office Hours
	3, 6 and 7	Mitchell	CLB 214	Office phone 392-0517
				M W F 4th and 5th periods T R 3rd and 4th periods

TEXTBOOK: Silberberg by McGraw-Hill 6th ED, ISBN: 9780077664091 (13 digits) or ISBN # 0077664094 (10 digits). You must purchase this ISBN. If you not you will not have the electronic homework called Connect included and will be forced to purchase it separately.



Did not get 6 ED of text you need Connect: Go to URL and buy the $49.99 version

INFORMATION: CHM 2045 and CHM 2045L constitute the first semester of the two term sequence of General Chemistry, CHM 2045-2045L-2046-2046L. This sequence is suitable for all science and engineering majors. To continue into CHM 2046, you must earn a grade of C or higher in CHM 2045 *and have* MAC 1140, or MAC 1147 or calculus I or the equivalent of these or higher ***completed***. (Statistics does not count.)

Warning!! If you drop your math class and do not have MAC 1147 or the equivalent or higher you will not be able to go on to CHM 2046 even if you pass CHM 2045! Read the Guide to Majors catalog. This means that you must be taking the math this term or have it show on your transcript. You will be ejected from CHM 2046 at the start of the next term even if the system allows you to register.

Schedule: I will follow this schedule very closely and Exam dates will not change!!

You cannot take the Final early don't ask!

Class Schedule (Fall 2012)

My class times are periods 3rd, 6th and 7th period 3 starts 9:35 period 6 starts 12:50 and period 7 start 1:55 pm

Dates	Topics	Book Chapters
22 Aug. to 24 Aug.	Introduction/ Components of Matter	Chaps.1, 2
27 Aug. to 31 Aug.	Components of Matter/ Stoichiometry	Chap.2 and 3
3 to 07 September	Stoichiometry/ Classes of Chemical Reactions	Chap.3, 4
Thursday, Sept. 6	**Online Assessment Quiz #1**	**Chaps. 1–3**
10 to 13 September	Stoichiometry/ Classes of Chemical Reactions	Chap.3, 4
R 13 September	**Exam 1**	Chaps.1, 2, 3, 4
14 to 20 September	Thermochemistry	Chap. 6
Thursday, Sept. 20	**Online Assessment Quiz #2**	**Chap. 6**
21 to 26 September	Quantum Theory	Chap. 7
28 Sept. to 03 Oct.	Electron Configuration and Periodicity	Chap. 8
Thursday, Oct. 4	**Online Assessment Quiz #3**	**Chap. 7–8**
05 to 10 October	Models of Chemical Bonding	Chap. 9
12 to 17 October	Shapes of Molecules	Chap. 10
Thursday, Oct. 18	**Online Assessment Quiz #4**	**Chaps. 9–10**
19 to 22 October	Theories of Covalent Bonding	Chap. 11
W 24 October	**Exam 2 6 chapters!!!**	Chaps. 6, 7, 8, 9,10, 11
26 Oct. to 29 Oct.	Gases	Chap. 5
31 Oct. to 5 Nov.	Intermolecular Forces and Liquids and Solids	Chap. 12
Thursday, Nov. 8	**Online Assessment Quiz #5**	**Chaps. 5, 12**
7 to 16 Nov.	Physical Properties of Solutions	Chap. 13
M 19 November	**Exam 3 Monday of Thanksgiving week**	Chaps. 5, 12, 13
26 Nov. to 5 Dec.	Kinetics	Chap. 16
Sat 08 December	**Final Exam (Cumulative!)** **Start Time 5:30 pm end 7:30 pm**	**Comprehensive** Chapters: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16

Holidays: Labor Day (Monday September 3rd), Homecoming (Friday 9th and Sat. 10th November). Veteran's Day (Monday Nov. 12); Thanksgiving (Wednesday, Thursday and Friday; Nov. 21 to 23)

TIPS: Chemistry is very much a "learn by understanding" subject. Because of this you must work in this course to do well. That means you must read the textbook, work the sample problems as you go, and do the electronic homework until you *understand*! Then you should work extra problems (from the book, slides and old exam problems) to test your understanding.

QUIZZES: All Quizzes will be taken on-line the schedule is included in the slide above and below. Five (5) Quizzes will be given. **No makeup quizzes will be given for any reason.** As with the progress exams, to accommodate unavoidable conflicts, we offer a dropped-quiz policy (the best 4 of 5 quizzes counting toward your grade – see under "GRADES" below). The lowest grade will be dropped, for a maximum total of 120 course points. **We will not have any make up quizzes!! Quiz schedule:**

Thursday, Sept. 6	**Online Assessment Quiz #1**	**Chaps. 1–3**
Thursday, Sept. 20	**Online Assessment Quiz #2**	**Chap. 6**
Thursday, Oct. 4	**Online Assessment Quiz #3**	**Chap. 7–8**
Thursday, Oct. 18	**Online Assessment Quiz #4**	**Chaps. 9–10**
Thursday, Nov. 8	**Online Assessment Quiz #5**	**Chaps. 5, 12**

DISCUSSION: First discussion will be Tuesday, August 28 or Thursday, August 30 (Tuesday or Thursday) depending on your section number!

EXAMS: **Three** progress exams and a **cumulative** final exam will be given in the course. All exams will be given in the evening (8:20 pm start time) and rooms will be assigned by section number and posted on the Home Page so **learn your section number!** Be on time and bring a calculator (non-graphing) and pencil to the exam room nothing else. NO NOTES OR INFORMATION SHEETS, NO COMPUTERS, CELL PHONES or any information storage device electronic or paper may be used during the exam.

No makeup progress exams will be given for any reason. We have no mechanism with such a large number of students for makeup exams**. Exam dates are clearly indicated on the syllabus and no excuse (none of any kind) will be accepted for not taking the exams on the scheduled date and time.** Final Exam may not be taken early **so don't ask**! Grades will be posted within 24 hours most of the time. Should you not see your grade on Sakai it is YOUR responsibility to inform me. If you do not inform me prior to the next exam I will not be understanding. Students may NOT use graphing calculators on exams, you must use a scientific calculator with exponents and log and ln functions. No other device may be used as a calculator i.e. cell phone, iPods etc. Calculator dies during the exam, no do-over. I suggest you bring a spare. No cell phones are allowed in the exam rooms. **We do not curve exams so don't ask**. Sample progress exams will be posted.

Student Responsibilities:

1. **You are required to attend all classes and discussions. (No you don't get points for doing what you are supposed to like coming to class.) You don't show to class it is up to you to find out what you missed. You are responsible for everything I say in lecture even if you don't come. Read the syllabus and check the online notes do not expect me to repeat a lecture. I have my class video recorded, how to access the videos will be posted. DO NOT depend on reviewing these the day before exam or use this as an excuse for not attending class. Note: The quality of the recording is not very good. You cannot sit and watch 3 hours in a row of my lectures and be successful in the class.**
2. **You are required to read and follow the syllabus it is a grading contract. You fail to comply and you will lose the points!**
3. **You must make check Sakai on a weekly basis to make sure all your grades are posted or if an announcement is made, or if something is wrong you must get with the instructor. Come see me for missing electronic homework and exam grades and do so promptly. If you wait till after the course ends I will not help you! The last day of the course is the last time I will put in a missing grade!**
4. **Exam grades are posted promptly, usually within 24 hours unless we have a problem. So, if yours does not show see your instructor. Scantron errors are not negotiable. This includes Form Code errors, registry errors, name and UFID numbers to name a few. If you wait until the last few days of the semester to discover an incorrect grade you may lose points. DO NOT WAIT TO POINT OUT A MISSED GRADE! If you come to me after the last day of class you will lose the points no discussion!**
5. **You must work "lots of problems", lots is different for everyone. These include end of chapter problems, problems on the notes / power point slides I have posted. Do not come to me with I did all the problems you said but still failed the exam. You take 20 minutes to do a problem at home but on the exam you have only 5 minutes to do the same problem. If you can't work a problem in 5 minutes you did not do enough problems! You MUST learn to problem solve and not memorize individual problems.**
6. **You must keep up with the lecture material, the on line homework and quiz material. All due dates are on the syllabus or the course home page so you have no excuse what so ever for missing or not knowing a due date. At first you may know the material and think you can slack off, don't do this it will harm your grade. Keep working, things happen fast here and once you get behind you may not be able to catch up.**
7. **You are responsible for your personal problems. Your problem(s) no matter how valid they are do not constitute an excuse or exemption from meeting the course requirements. Have a problem that stops you from performing then YOU must go see the Dean of Students, they can help you.**
8. **Do not e-mail me, do not voice mail me, and do not leave notes for me. (Why? Because I have over 1800 students and cannot handle e-mail from that many students!) All e-mails will be deleted unread. If you want me to do something for you then you come find me. Office hours will be posted on the course home page and on my office door.**
9. **If you need help get it early, help is available. The Chemistry Learning Center is in Flint 257-278 it will have graduate students to assist you. A schedule with TA names and their times in the CLC will be posted.**
10. **Learn how to fill out a scantron. Scantron errors are not negotiable. This includes Form Code errors, registry errors, and name and UFID numbers. Make it hard for me to post your grade and you will lose points. You WILL BE penalized for scantron errors that require me to do extra work to get your grade into the e-learning grade book. First offense 9 points (this means that your grade will end in a 1 not a 0), second offense 18 points, third offense 24 points and fourth offense 36 points. It pays to learn how to fill out a scantron properly. A copy of a scantron is below.**
11. **If you want to see your scantron you MUST come see me within 5 school days of the exam. They will not be e-mailed or given to a second party.**
12. **Need an interview for First year Florida I will do them but only in a group and only a few days.**

SCORING: Your grade for the term will be determined as follows:

Progress Exams (best 2 of 3@ 250 pts each)	500
McGraw-Hill Connect (free with the text if you purchased the ISBN listed above.)	80
Quizzes (best 4 of 5 @ 30 points each)	120
Final Exam	300
TOTAL	1000 pts

Grades will not be curved. *The following grade cutoffs will be used: This is fixed; points* ***will not*** go up. We are now using minus grades so your grade will be based on the scale below. Off by one point you get the grade you earned.

A = 900	B - = 760	D + = 630
A - = 860	C + = 730	D = 600
B+ = 830	C = 700	E < 600
B = 800	C - = 660 Failing grade	

On-line Homework McGraw-Hill Connect**:** McGraw-Hill Connect points will be up dated on Sakai several times during the semester, usually when exam grades are posted.

McGraw-Hill Connect has two parts LearnSmart and Connect:

This is a unique address for
All Fall 2012 sections for Dr. Mitchell

Use this URL for Connect registration and access if you are a Mitchell student
If you transferred into my class you MUST register on my site!!

http://connect.mcgraw-hill.com/class/chm2045_fall_12_connect

WHAT IS LEARNSMART?

LearnSmart is an interactive study tool that adaptively assesses students' skill and knowledge levels to track which topics students have mastered and which require further instruction and practice. Based upon student progress, it then adjusts the learning content based on their knowledge strengths and weaknesses, as well as their confidence level around that knowledge.

LearnSmart's adaptive technology also understands and accounts for memory degradation. It identifies the concepts that students are most likely to forget over the course of the semester—by considering those that they had been weakest on or least confident with—and encourages periodic review by the student to ensure that concepts are truly learned and retained. In this way, it goes beyond systems that simply help students study for a test or exam, and helps students with true concept retention and learning.

Dynamically generated reports document progress and areas for additional reinforcement, offering students real-time feedback on their content mastery. By monitoring student progress, educators have the ability to instantly evaluate the level of understanding and mastery for an entire class or an individual student at any given time.

For us this Fall 2012 term in CHM 2045 each chapter is worth 2 points for completing LearnSmart.

LearnSmart is the conceptual portion of the electronic homework set for each chapter.

Due dates are set for each chapter and no credit is given for late work. You may go back and use any chapter as a review after the due date.

WHAT IS CONNECT?

McGraw-Hill *Connect* claims to be a revolutionary online assignment and assessment solution providing instructors and students with tools and resources to maximize their success. For us this Fall 2012 term in CHM 2045 each chapter is worth 5 points for completing Connect. Connect is the calculation portion of the electronic homework set for each chapter. Due dates are set for each chapter and no credit is given for late work. You may go back and use any chapter as a review after the due date.

Each posting is the new total of the points you have. Keep up with your McGraw-Hill Connect **grade and know your due dates. If you wait till after the classes end to discover a grade is incorrect you will lose points. We will not reopen up or extend the dates just because you missed the due date. You have several days to complete each WEB Assign assignment. Do not wait till the last minute to do your assignments! Computer and server problems are yours and will not be considered.**

Sakai: To access Sakai you should go to the website: http://lss.at.ufl.edu . Choose "Sakai", then "University of Florida". To log in, you must use your GatorLink username and password. If you do not yet have one, you must obtain one. If you have any problems with your GatorLink name or password you should contact the Help Desk at 392-HELP, or go to 520 CSE. They will only help you with GatorLink issues.

HONOR SYSTEM: All exams are given under the Honor System. Any student caught cheating will receive the maximum punishment I can bring to bear. (Cheating of any kind will result in a grade of E.) Check the website for the UF policy on honesty and cheating: http://www.dso.ufl.edu/stg/Code_of_Conduct.html

CHEMISTRY LEARNING CENTER (CLC): There is free help to be had from graduate student teaching assistants in the CLC Monday through Friday in Flint Hall 257 and 258. Your discussion TA will have office hours in the CLC, but you may go there anytime and see any TA to get help on questions pertaining to chemistry. A schedule of the TA schedules will be posted in the corridor outside the CLC and on e-Learning. The CLC ends their office hours the last day of class and I end my office hours then as well.

Other Information:
Honor Code: http://www.chem.ufl.edu/~itl/honor.html
Disabilities: http://www.chem.ufl.edu/~itl/disabilities.html
Counseling: http://www.chem.ufl.edu/~itl/counseling.html

STUDENT ATHLETES and SCHOOL EVENTS: You must see me in person each and every time about taking a graded event outside posted times that means early never late.

DISABILITY RESOURCES: Disability resources students must see me the first week of class. If you are applying for disability resource status come see me the first week of class. Students requesting classroom and exam accommodations must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Students will then go to the disability resource center.

The Dean of Students Office provides individualized assistance for students with documented disabilities. Services are based upon student need and impact of their specific disability. There is no requirement for any student to self-identify as having a disability. However, students requesting classroom accommodations must register with the Dean of Students Office and provide the appropriate documentation verifying their disability. The Dean of Students Office determines what is and is not appropriate documentation. Examples of accommodations that are available to students include, but are not limited to, registration assistance, approval of reduced course load, course substitutions, classroom and examination accommodations, auxiliary learning aids, additional course drops when disability related, and assistance in other university activities. The designated coordinator for compliance with Section 504 of the Rehabilitation Act of 1973, as amended, and the Americans

with Disabilities Act (ADA) is the Assistant Dean of Students responsible for Students with Disabilities Programs, P202 Peabody Hall, 392-1261 (Voice), or 392-3008 (TDD).

The Disability Resource Center strives to provide quality services to students with physical, learning, sensory or psychological disabilities, to educate them about their legal rights and responsibilities so that they can make informed decisions, and to foster a sense of empowerment so that they can engage in critical thinking and self-determination.

Course Objectives: CHM 2045 (General Chemistry I)
To build a basic fund of knowledge of the science of chemistry covering the topics below:
To analyze scientific concepts and think critically.
To review the importance of chemistry in our everyday lives.
To be able to utilize the methods of science as a logical means of problem solving.

The Foundation of Chemistry
Matter and Energy-Basic Concepts of Chemistry
Measurements
Significant Figures
Metric System
Scientific Notation
Dimensional Analysis

Chemical Formulas and Stoichiometry
Atoms, Ions, Molecules and Compounds
Nomenclature of Inorganic Compounds
The Mole Concept
Percent Composition
Empirical Formula
Molecular Formula

Chemical Equations and Reaction Stoichiometry
Balancing of Chemical Equations
Calculations Based on Chemical Equations-moles/masses of reactants/products
Limiting Reagent Calculations
Percent Yield and Theoretical Yield Calculations
Sequential Reactions
Concentration of Solutions-Calculations Involving Mass % and Molarity
Dilution of Solutions: Calculations Involving $V_1M_1=V_2M_2$
Calculations Involving Solution Stoichiometry

Chemical Reactions
Organization of the Periodic Table
Aqueous Solutions-Strong and Weak Electrolytes
Reactions in Aqueous Solutions
Oxidation Numbers

Thermodynamics

The First Law of Thermodynamics
Enthalpy, ΔH
Calorimetry (constant-pressure and constant volume)
Thermochemical equations
Internal energy, ΔE
Relationship between ΔE and ΔH
Hess' Law
Standard enthalpies of formation and reaction
Bond energy and ΔH
The Second Law of Thermodynamics & Spontaneity

The Structure of the Atom

Experiments that led to the discovery of the fundamental particles of the atom
Subatomic Particles, Isotopes, Atomic Weight
Development of Quantum Mechanics
Quantum Mechanical Model of the Atom
Electronic Configuration and the Relationship to the Periodic Table
Orbital Diagrams
Quantum Numbers
Chemical Periodicity

Theory of Ionic and Covalent Bonding

Lewis Dot Formulas of Atoms
Formation of Binary Ionic Compounds-Coulomb's Law, Lattice Energy
Formation of Covalent Compounds
Lewis Structures for Molecules and Polyatomic Ions and the Octet Rule
Resonance and Formal Charges
Exceptions to the Octet Rule for Lewis Structures
Polar and Nonpolar Covalent Bonds

Molecular Structure

Valence Shell Electron Pair Repulsion Theory (VSEPR)
Electronic and Molecular Geometry and Molecular Dipole Moments
Valence Bond Theory and Hybridization of Orbitals
Molecular Orbital Theory

Gases

Gas Laws and Ideal Gas Law
Density and Molar Mass
Stoichiometry of Reactions Involving Gases
Kinetic Molecular Theory-Molecular Speeds
Real Gases

Liquids and Solids

Intermolecular Attractions and Phase Changes
Physical Processes and Properties of Liquids
Melting Point/Boiling Point
Phase Changes of Matter and Phase Diagrams
Molar Heat of Vaporization and Molar Heat of Fusion

Solutions

Dissolution Process for Solids, Liquids and Gases
Factors Affecting Solubility
Saturated, Unsaturated and Supersaturated Solutions
Other Units of Concentration
Colligative Properties

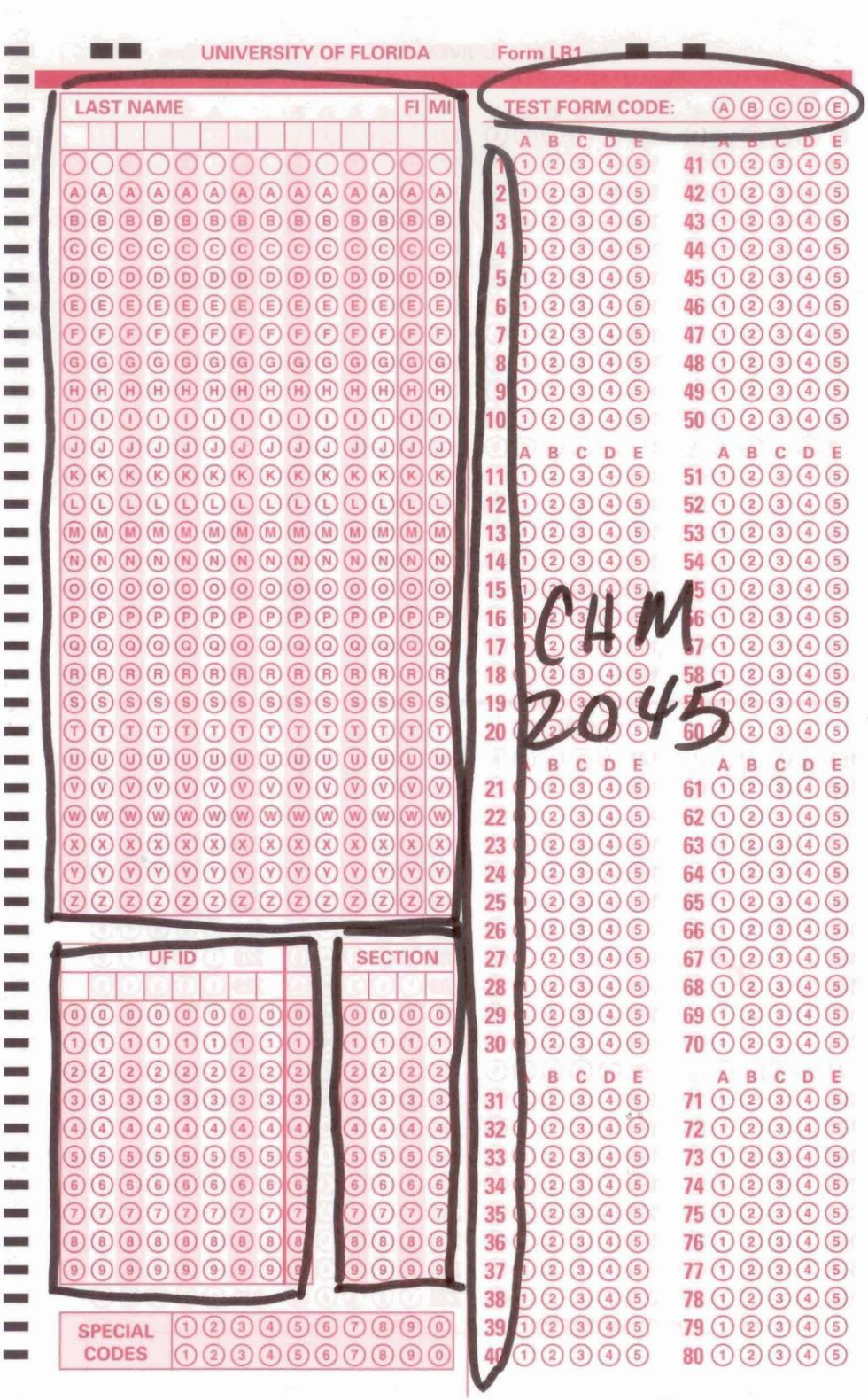
1. Vapor Pressure Lowering
2. Boiling Point Elevation
3. Freezing Point Depression
4. Osmotic Pressure

Chemical Kinetics:

Rate of a reaction
Factors that affect reaction rates
a. Nature of reactants
b. Concentration of reactants: Rate-law expressions & Reaction order
c. Concentration vs. time: Integrated rate equations and half-life
Collision theory, activation energy
Transition state theory
Mechanisms and Rate-law expressions
Arrhenius equation: temperature and rate
Catalysts

Chemical Equilibria

Dynamic equilibria
Equilibrium constant Kc
Reaction quotients
Calculations with Kc
Heterogeneous equilibria
Kp and Kc
Le Chatelier's Principle: factors affecting equilibria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SPECIAL CODES

		Monday	Tuesday	Wednesday	Thursday	Friday
1	7:25 A. M. – 8:15 A. M.					
2	8:30 A. M. – 9:20 A. M.					
3	9:35 A. M. – 10:25 A. M.					
4	10:40 A. M. – 11:30 P. M.					
5	11:45 A. M. – 12:35 P. M.					
6	12:50 P. M. – 1:40 P. M.					
7	1:55 P. M – 2:45 P. M.					
8	3:00 P. M. – 3:50 P. M.					
9	4:05 P. M. – 4:55 P. M.					
10	5:10 P. M. – 6:00 P. M.					
11	6:15 P. M. – 7:05 P. M.					

	Sum AC	Monday	Tuesday	Wednesday	Thursday	Friday
1	8:00 A. M. – 9:15 A. M.					
2	9:30 A. M. – 10:45 A. M.					
3	11:00 A. M. – 12:15 P. M.					
4	12:30 P. M. – 1:45 P. M.					
5	2:00 P. M. – 3:55 P. M.					
6	3:30 P. M. – 4:45 P. M.					
	Sum BC	Monday	Tuesday	Wednesday	Thursday	Friday
1	8:0O A. M. – 9:15 A. M.					
2	9:30 A. M. – 10:45 A. M.					
3	11:00 A. M. – 12:15 P. M.					
4	12:30 P. M. – 1:45 P. M.					
5	2:00 P. M. – 3:15 P. M.					
6	3:30 P. M. – 4:45 P. M.					