CHEM 104H : Problem Solving For General Chemistry I (3 credits) – SUMMER 2015
EAGLE STEM SCHOLARS PROGRAM

Class Meetings:
MTWR: 3:45-5:45 p.m

Instructor:
Dr. Clifton Harris
Office: Sims 302B
E-mail: harrisc@winthrop.edu
Phone: x 4929
COURSE WEBSITE: Follow link to dropbox.com invitation in your email inbox

Required Course Materials:
Textbook: General Chemistry, 4th ed., by Mcquarrie, Rock, and Gallogly
Calculator: Any scientific or graphing calculator. Cell phones are prohibited during quizzes and exams.

Attendance Policy:
Attendance is mandatory. Each unexcused absence will result in forfeiture of 2.5% of overall grade. You are strongly encouraged to attend every lecture as the order of the course material will deviate from the book.

Course Format: This class is a unique course designed to challenge, motivate, and foster collaboration between the best and brightest STEM scholars. The students will be divided into a set number of groups. Students will complete all assigned classwork, homework, projects and exams as groups. ALL GROUP GRADES WILL BE AVERAGED, AND THE ENTIRE CLASS WILL RECEIVE ONE UNIFIED GRADE FOR EVERY ASSIGNMENT. THEREFORE, AT THE CONCLUSION OF THE COURSE, ALL STUDENTS WILL HAVE THE SAME LECTURE GRADE (not accounting for unexcused absences). You will receive individual quiz grades and a laboratory grade for your in-lab activities which will be factored into your final grade. It is of utmost importance that you all utilize one another as valuable learning resources, work together, seek help as needed, and provide help whenever possible. You will be held accountable for yourself and for your peers.

Course Goal:
The goal of this course is to provide an introduction to problem solving in chemistry, to strengthen the ties of your cohort, and to emphasize the importance of collaboration. This course is heavily quantitative, and will require a significant amount of algebraic calculation. At the conclusion of the course, students are expected to exhibit refined problem solving skills and critical thinking ability.

Outline of Topics to be covered:
Unit 1: SI units, derived units, significant figures, atomic structure, periodic table trends, balancing reactions, electron configurations, ions and ionic compounds, octet rule, ionic reactions, redox reactions, coulombs law
Unit 2: Stoichiometry, molarity
Unit 3: Gas laws, thermochemistry
Unit 4: Kinetics, Equilibrium
Unit 5: Acids and Bases

Study Tips:
Stay on top of the material by reviewing the textbook in your free time. **WORK TOGETHER.** Use other textbooks for reference. Do additional practice problems as well. **Make sure you UNDERSTAND the material. Do not simply memorize examples.** Try variations of problems to ensure complete understanding.

Assignments:
Tests: 40 %
Written Homework: 15 %
Special Projects: 10 %
Unannounced Quizzes: 5 %
Final Exam: 15 %
Laboratory Grade: 15 %

Lectures: *Most* lectures will be given from powerpoint. All powerpoint lectures will be uploaded to the web. You all should have received an invitation to DROPBOX in your email on June 24. Follow the link to review course material.

Exams: Four 100-point exams will be given in class on announced dates. These exams will be taken in groups. All members of the group must contribute. If I have reason to believe that a student has not contributed, that student will receive no credit. Periodic assessments may be given to gauge the knowledge of group members. If you will be unable to take an exam at the scheduled time due to participation in a University-approved activity, **you must make arrangements in advance to take the exam at another time.** If you are absent on the exam date without prior approval and do not provide a written doctor's excuse, you will receive a zero for that exam.

Homework: There are 5 homework assignments in this course. The due dates of these assignments will be announced. Copies of the assignment will be given out in class.

Unannounced Quizzes: There will be an undetermined number of quizzes related to assigned readings throughout the semester that will not be announced. Stay on top of the material.

Special Projects: There are 2 projects in this class. The first is a data-fitting assignment using excel. This will be covered in the kinetics unit. The second is a 10-15 minute group presentation in which each group presents on a topic of my choosing. Each topic will incorporate concepts learned in class. You will be graded on your ability to explain these topics scientifically, using the knowledge you’ve gained.
Grading scale:
A    93-100    A-    90-93
B+   87-89     B     81-86
B-   77-80     C+    74-76
C    68-73     C-    65-67
D    60-64     F     < 60

Students with Disabilities:
Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact me ASAP.

The Office of Victims Assistance Syllabus Statement: The Office of Victims Assistance (OVA) provides direct services to survivors of sexual assault, domestic violence, dating violence, and stalking as well as campus-wide educational programming to prevent these crimes from occurring. The staff provides counseling services and assists with obtaining sexual assault forensic exams, STI testing/treatment, pregnancy prevention, housing options, legal prosecution, and access to other support services including assistance with class or course problems resulting from victimization (i.e. missed classes, trouble concentrating or completing assignments). The OVA is located in 204 Crawford and can be reached at (803) 323-2206. In the case of an after-hours emergency, please call Campus Police at (803)323-3333, or the local rape crisis center, Safe Passage, at their 24-hour hotline, (803)329-2800.

Academic Integrity: Any instances of academic misconduct will be dealt with as outlined in the Student Conduct Code (Sect. V), found in the Student Handbook (http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf).

Syllabus Change Policy: Changes to the policies listed here may be made at the instructor’s discretion. Students will be notified of any modifications.

Withdrawal: The withdrawal deadline is TBA.