# CHEMISTRY 504: Simplified Curriculum Map

# Competencies: 1—Practical (performs & reports lab activities) , 2—Theory (Makes use of knowledge)

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| **Title:** | **Review** | **Measurement** | **Gas Laws** | **Heat and Energy** | **Review of first semester** |
| Time Line: | September (2 weeks) | September (end) | October | November | December |
| Essential Question: | How do we measure and calculate in Chemistry? | What are the properties and particles of matter? | How do gases react to changes, and how does this relate to particles? | How do the properties of gases change relative to the conditions | How does the release and absorption of energy happen in reactions? |
|  | Significant figures  Algebra & math formulae  Solving problems  Experimental error calculations | Review of Science  Atoms, molecules, formulae  Balancing equations  The mole  Stoichiometry | Properties of gases  Common gases & their uses  Kinetic Theory of gases | General gas laws  Boyle’s, Charles’, Gay-Lussack’s & Avogadro’s laws  The General Gas Law  The ideal gas constant  The Ideal gas law | Endo/exothermic reactions  Calorimetry  Enthalpy & graphs  Molar Heat of reaction |
| Overview | 6 lessons,  1 lab (density)  1 quiz | 5 lessons,  1 lab (Stoichiometry)  1 test (C2:) | 9 lessons,  (Demo: Diffusion)  1 Test (Kinetic Theory) | 11 lessons,  Lab (Boyle’s Law)  Test (gas laws) | 10 Lessons  2 labs (endo/exothermic)  (heat of reaction) |
| ~Periods  (50 min) | 6 | 6 | 10 | 12 | 10 |
|  |  |  |  |  |  |
| **Title:** | **Review for Mid-year** | **Rates of Reaction** | **Equilibrium** | **Acid Base Reactions** | **Review** |
| Time Line: | January | February | March | April | May |
| Essential Question: | How do I pass my mid-term? | What factors affect the speed of a reaction? | What is chemical equilibrium? | How do acids and bases maintain an equilibrium? | How do I pass my exam? |
|  | Finish heat of reaction  Review for mid-year exam, catch up on missing work,  Make up for lost time. | Measuring & graphing rates of reaction | Forward and reverse reactions  Equilibrium equations  Equilibrium constants  ICE method  LeChatelier’s principle | Acids & bases  Hydronium & hydroxide  pH and pOH  Neutralization & titration  Solubility  Solubility products | Wrap up course  Practice session for lab exam,  Practice examinations |
| Overview | Test (heat of reaction) | 6 lessons  1 lab (Le Chatelier)  1 test | 9 lessons  1 lab (Reaction rate)  1 test | 6 Lessons  1 Lab (Titration) | Lab exam |
| ~Periods | 9 | 8 | 8 | 12 | 8 |