MGMS-7400 Physical Science

May 16th - July 19th, 2011

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Course Description

This is an integrated math and physics course with special emphasis on Physical Science courses taught at the middle school level. The assigned work will include the GPS standards for 8th grade Physical Science as well as the Carnegie Unit Physical Science course now being offered in some middle schools. Some of the topics covered in this class will include: The Scientific Method, the SI system of measurement, Atoms, The Periodic Table, Elements, Compounds, Mixtures, Chemical Bonding, Solutions, Newton's Laws of Motion, Energy and Energy Transformations, Work, Power, The Kinetic Theory of Matter, Wave Behavior, Sound, Light, Electricity, and Magnetism.

Competencies

Upon completion of this course, participants will be able to:

- Understand the fundamental laws and theories of the universe in order to present physical science topics to students.

- Apply the physical science content presented in the textbook through on-line lab explorations and simulations.

- Integrate math concepts with real-world physics problems. Students will be given problems to solve that are modeled in the textbook and the notes.

- Analyze the Georgia and National Science Education Standards related to the

teaching of physical science and physics.

- Use technology to complete assignments and communicate.

Required Course Materials

Textbook: The Physical Universe (12th Edition), Krauskopf & Beiser, McGraw Hill, 2008

Scientific Calculator: The basic $15 scientific calculator will do just fine (TI-30 for example). Be sure the calculator can do exponents. Look for an EE or EXP key on the calculator.

3 ring binder to stay organized.

Attendance

Students are expected to complete all tasks in a timely manner. Your participation in discussions and assignments constitutes attendance for the course.

Academic Integrity

Assignments are given to you personally, to be completed by you alone, and not to be duplicated from the work of other students.

Homework

Homework assignments are given regularly and include reading and written work (multiple choice, questions, and problems). Your textbook, assigned reading, and notes will provide answers to questions or examples of your homework assignments. Quiz and test questions are drawn from class notes, assigned readings, homework problems, and on-line activities.

Grading

Homework problems will be graded for accuracy. Homework will be 20% of final grade.

Discussion questions will be graded based on content, following directions, expenditure of effort, grammar, and expression of ideas. Discussion will be 10% of final grade.

Labs will be graded for accuracy and effort. Labs will count for 20% of final grade.

Quizzes and tests will be graded for accuracy. There will be a weekly quiz and quiz grades will comprise 20% of final grade. Tests will be 30% of final grade. There will be a test at the end of weeks 2, 4, 6, and 8 and tests will cover the material from the previous two weeks.

Schedule (subject to change)

Week One – Scientific Method / SI Measurement / Scientific Notation / Significant Digits

Week Two – Atomic Structure / Periodic Table

Week Three - Bonding / Reactions

Week Four – Solutions / pH

Week Five – Motion

Week Six – Energy

Week Seven – Waves / Light / Sound

Week Eight – Electricity / Magnetism