



CHAPMAN
UNIVERSITY
School of Education

COURSE SYLLABUS

EDUC 530-S Secondary Content Methods for Science Fall 2005/Spring 2006

Number of Credits: 3

Course Description:

This course explores the teaching and learning of science (biological, physical, and earth/space) in contemporary secondary schools. Candidates become familiar with secondary science programs and structures, national and state-adopted science content standards, science content learning theory, models of science classroom organization, and science instructional planning and assessment to serve the diverse students in contemporary secondary classrooms. The course specifically addresses the California Teaching Performance Objectives regarding making subject matter comprehensible to students, engaging and supporting students in learning, planning instruction, maintaining effective environments for all learners, and assessing student learning as they apply to the secondary science classroom.

The focus is to provide students with an understanding of the skills necessary to be a middle school or senior high school science teacher. Students in the Single Subject Program who are in EDUC 530-S must complete a minimum of 20 hours of fieldwork in a middle or high school science classroom within their primary area of future science credential authorization (biological science, chemistry, physics, etc.). Ideally, this fieldwork should be completed in a minimum of seven school visits spread over the semester (visits recommended to range from two to four hours in length each, depending on the student's schedule).

Required prerequisite/co-requisite(s): Must be taken concurrently with EDUC 530P Praxis, no exceptions. Student also should have completed EDUC 524 and 524P Secondary Methods of Teaching and Learning I.

Recommended prerequisites/co-requisite(s): EDUC 401 (Foundations of Education), EDUC 501 (Second Language Acquisition, Literacy, and Learning in California Schools), EDUC 570 (Voice, Diversity, Equity, and Social Justice), EDUC 571 (Inclusion in the Public Schools).

Required Texts: All texts are designed to become a valuable part of the science teacher's professional library; it is strongly recommended that you not sell back these texts at the end of the semester as you will likely wish to refer to them during Student Teaching and beyond.

Free downloadable required texts:

- California Department of Education. (2004) California Academic Content Area Standards. Available for download (no cost) from <http://www.cde.ca.gov/be/st/ss/index.asp>; select your appropriate content area within science and/or grade level(s).
- California Department of Education (2001). California Teaching Performance Expectations. Available for download from the Blackboard course site (pdf format).

Required texts available online from publisher:

- Chiappetta, E.L., & Koballa, T.R. (2006) Science Instruction in the Middle and Secondary Schools (6th edition). New Jersey: Prentice Hall. ISBN 013195430X. Available from www.prenhall.com. Comes bundled at no additional cost with:
- Koballa, T.R., & Tippins, D.J. (2004) Cases in Middle and Secondary Science Education: The Promise and Dilemmas (2nd Edition). New Jersey: Prentice Hall.
- Barton, A.C., Ermer, J.L., Burkett, T.A., & Osborne, M.D. (2003) Teaching Science for Social Justice. New York: Teachers College Press. Available from www.tcpress.com or www.amazon.com.

Recommended Texts (are used in EDUC 524 and 524P and will be referred to in this course):

- Borich, G.D. (2004). *An Educator's Guide to Field-based Classroom Observation*. Boston: Houghton Mifflin. Available for online purchase from www.college.hmco.com.
- Emmer, E.T., Evertson, C.M., & Worsham, M.E. (2006). *Classroom Management for Middle and High School Teachers* (7th edition). Boston: Pearson. ISBN 0205468004 (Comes bundled at no additional cost with My Lab School Access Card). Available for online purchase from www.ablongman.com.
- Popham, W.J. (2005). *Classroom Assessment: What Teachers Need to Know* (4th edition). Boston: Pearson. ISBN 0205477046. (Comes bundled at no additional cost with Research Navigator software.) Available for online purchase from www.ablongman.com.
- Savage, T.V., Savage, M.K., & Armstrong, D.G. (2006) *Teaching in the Secondary School* (6th edition). New Jersey: Pearson. ISBN 0131689169. Comes bundled at no additional cost with Kellough, R.D. (2005). *Your First Year of Teaching: Guidelines for Success* (3rd edition). New Jersey: Pearson. Available for online purchase from www.prenhall.com.

Required Ancillary Materials:

The following ancillary materials are required in order to successfully complete the course:

1. *Technology Access (computer with internet access & printer)* ~ either at home or on-campus
 - You are expected to have an active chapman.edu email address and to check your email on a daily basis. The instructor will use email to alert you of important updates, class

cancellations, and general information between class sessions. You are responsible for the information transmitted via email – please be sure to read these messages carefully.

- Assigned readings, activities, and assignments will be posted weekly on Blackboard to supplement, extend, and help master the content of the course. Textbook support materials (such as Research Navigator or My Lab School) will also need to be viewed or retrieved online. It is your responsibility to access Blackboard (and the textbook support websites, if applicable), and to print and keep copies of resources and assignments in an organized course notebook.
- To access Blackboard, go to <http://blackboard.chapman.edu> and login.

2. *TPE (Teacher Performance Expectations) Notebook*

- Currently, in the State of California, all credentialing candidates are expected to document and provide evidence that they have successfully met the *Teaching Performance Expectations (TPEs)*. TPEs are embedded in the objectives for Chapman University credentialing courses. Throughout the course, candidates will be expected to organize samples of evidences and artifacts that support the TPEs. The TPEs are posted on the Blackboard site for the course.
- The *TPE Notebook* should be organized, using a large three-ring binder or file box (recommended as it is easier to insert materials of odd size), so that it will be a useful professional resource. Each section of the *Notebook* must have individually labeled tabs. Organize the sections by TPE number and include all materials pertaining to that TPE in the appropriate section. *All materials collected and produced during this course will have an appropriate place in the TPE Notebook.* Include a completed Table of Contents/Index at the front.
- The *TPE Notebook* will be added to in subsequent secondary methods courses; therefore, it is a highly important document that you should spend considerable time organizing.

Course Objectives with Teaching Performance Expectations:

Candidates will develop an understanding of the following standards and concepts as they apply to teaching and learning in the secondary science classroom:

- Conducting a critical analysis of academic content standards as they impact student achievement (TPE 1B.1, 1B.3, 10.1)
- Strategic planning and scheduling of instruction to ensure that students meet or exceed the standards (TPE 1B.3)
- Using progress monitoring during instruction (TPE 2.1)
- Using several models of assessment practices, including development of rubrics and guidelines, in a diverse classroom in the student's discipline (TPE 2.1, 3.1, 3.3, 8.2, 8.3)
- Pacing instruction and re-teach content based on evidence gathered using assessment strategies (TPE 2.2)
- Understanding the use of a variety of informal and formal, as well as formative and summative, assessments to determine students' progress and planning instruction (TPE 3.1, 8.2)
- Understanding the purposes and uses of different types of diagnostic instruments (TPE 3.3)
- Incorporating specific strategies, teaching/instructional activities, procedure and experiences to provide a balanced and comprehensive curriculum (TPE 4.1)

- Creating a positive environment for all learners and developing clear expectations for academic and social growth (TPE 4.1, 4.2, 11.1, 11.3, 11.6)
- Providing opportunities and adequate time for students to practice and apply what they have learned (TPE 4.6)
- Taking additional steps to foster access and comprehension for all learners when students do not understand content (TPE 4.12)
- Clearly communicating instructional objectives to students (TPE 5.1)
- Ensuring that students understand what they are to do during instruction and monitoring student progress toward academic goals (TPE 5.3)
- Collaborating with peers and professionals in refining structure, organization, and implementation of academic delivery (TPE 5.6, 7.6, 9.10)
- Merging theory and practice as they relate to the classroom experience (TPE 6, 9, 10.2)
- Establishing intellectually challenging academic expectations and providing opportunities for students to develop advanced thinking and problem-solving skills (TPE 6C.1)
- Exploring elements of teaching in a contemporary secondary school, including organization, structure, state standards and assessments, community expectations, and professional, legal, and ethical obligations (TPE 8.5, 12)
- Understanding the purposes, strengths and limitations of a variety of instructional strategies, including examining student work; improving their successive uses of the strategies based on experience and reflection (TPE 9.5)
- Selecting or adapting instructional strategies, grouping strategies, and instructional material to meet student learning goals and needs (TPE 9.7)
- Establishing procedures for routine tasks and managing transitions to maximize instructional time (TPE 10.2)
- Developing and maintaining clear expectations for academic and social behavior (TPE 11.1)
- Promoting student effort and engagement and creating a positive learning environment (TPE 11.2)
- Taking responsibility for student academic learning outcomes (TPE 12.1)

Major Units of Study and Inquiry:

Unit 1: The Secondary Science Teacher – From theory and philosophy into practice

- Establishing a science teaching philosophy
- Purposes for science teaching
- Science teaching and learning from a social justice perspective

Unit 2: The Nature of Science and Science Learning Theory (with emphasis on adolescents)

- The nature of science
- The adolescent science learner
- The role of literacy and language in the construction of science knowledge
- Secondary science communities

Unit 3: Strategies for Effective Science Teaching

- Effective planning, short and long range
- Inquiry Techniques
- Demonstration, lecture, discussion

- Discrepant events and misconceptions
- Integrating science with other content areas
- Science-Technology-Society (STS)
- Laboratory and Fieldwork
- Family and Community Resource Collaboration
- Safety in the Science Classroom
- Technology in the Science Classroom
- Assessment of science learning

Evaluation and Grading:

This course is designed for future practicing teachers. For this reason, the assignments will require you to integrate theory and classroom practice. You will be evaluated on your demonstrated knowledge of content and practice in assignments, your ability to interact with assigned texts and materials, and your class participation.

One of the most critical skills a teacher must possess is the ability to communicate with others, both orally and in writing. As such, your demonstrated level of writing skill is tantamount to the grade you will receive in this course. Written assignments are expected to be free of grammatical and spelling errors, to be well-constructed, and to demonstrate richness of thought as well as complex understanding of the topic(s) under study. If you are in need of assistance with your writing, please do not hesitate to make an appointment during the instructor's office hours and/or to visit the Writing Center in 110 Roosevelt Hall (714-997-6624) for assistance. A handout on Writing Helps can also be found on the Blackboard course site.

If you need a basic reference book for grammar and punctuation, the following is recommended:

Truss, L. (2003). *Eats Shoots & Leaves: The Zero Tolerance Approach to Punctuation*. New York: Gotham.

Final grades will be based on multiple assessments of candidate's proficiency in the course content including those listed below.

Required Assignments/Assessments:

- **Science Education Journal Article Reviews (10 points)** – read and summarize at least three articles from at least two of the journals listed in the reference section. Only articles from the journals listed are acceptable. Your minimum one page typewritten summary of each should include a short synopsis of the article, how you would use the information in your teaching, and what you learned from the article about teaching/learning science. Please provide an electronic copy of the article with your summary for a class collection; if you need assistance in doing this contact one of Dr. Miller's assistants in her office.
- **Reflective Journal (30 points)** – you will keep a reflective journal during this course; it is recommended that the journal be kept in a traditional composition notebook. In it, you will record your reflections on reading assignments, class activities, and your Praxis observations (at least one entry for each time you are in the field). Specific reflections or answers to reading questions as required by the instructor will be completed in this journal as well. This journal may be written in free-flowing style and using pencil if you wish (it is the only assignment that is not required to be word processed). It is required that you critically reflect on what you read, observe, and experience during this course – not just reiterate what you

have done (it is not a lab report or scientific journal), and tell how your reflections will influence your own teaching practice.

- **Microteach Assignments (60 points)** – the following microteach experiences must be completed during the Praxis assignment and/ or outside of class.
 - **Science Around Us Mini-Unit Plan (15 points)** – visit a local science attraction, facility, or naturally occurring phenomenon, such as, but not limited to: Discovery Science Center (Santa Ana), California Science Center (Los Angeles), Griffith Observatory (only the Satellite Center is open Fall 2005 due to renovation of the main facility; Los Angeles), Page Museum/La Brea Tar Pits (Los Angeles), Santa Ana Zoo, Orange County Zoo, Jet Propulsion Laboratory (Pasadena), Aquarium of the Pacific (Long Beach), Birch Aquarium (San Diego), any botanical garden that might serve as an education site (too many to list), Sea World (San Diego), Cabrillo Marine Aquarium (Los Angeles), or California Wolf Center (Julian). Location must be approved by instructor in advance. After visiting the facility, write a comprehensive mini-unit plan including pre-trip activities/lessons, objectives for the visit and any assignments that should be completed by students during the visit, post-trip activities, and student assessments. As with all assignments, alignment to the California Content Standards is required and must be included in the lesson/unit plan(s). You will make a presentation to the class on the destination of your visit and your planned lesson in addition to turning it in; more details on the assignment may be found on the Blackboard site.
 - **Science Song, Dance, Game, Art or Improv Assignment (10 points)** – design one of the listed creative ways to engage your students in science and address the multiple intelligences you may have in your classroom. Must demonstrate how the activity is aligned with the California content area standards. You will make a presentation to the class of your activity; more details on the assignment may be found on the Blackboard site.
 - **Unit Plan (15 points)** – acquire materials and write a unit plan that contains at least one week’s worth of instructional activities in your science discipline at the secondary level (five lesson/activity plans *minimum*). Include appropriate differentiation of instruction for students who are English language learners or have exceptional needs (i.e., LD, gifted, physically impaired). At least one hands-on investigative activity must be included in the unit. Standards correlations for each activity must be included. Must cover both instructional and assessment activities within the unit.
 - **Lessons taught in the field (20 points)** – you will teach and submit two 50-minute (or equivalent instructional period) lessons within the classroom where you complete your EDUC 530 Praxis. The topics for these lessons are to be determined in collaboration with the classroom science teacher serving as your mentor. You will develop a lesson/activity plan for each lesson and will videotape your teaching (see Dr. Miller if you need to checkout video equipment; you will be responsible for providing your own tape or DVD). You will trade videotapes with another student and have them critiqued by the student partner and the instructor, and parts of the videos may be shown in our class for further demonstration and/or critique. You will also do a self-evaluation of your teaching through viewing of the video and a written evaluation. More details on this assignment will be posted on the Blackboard course site.
- **Join a professional science teaching organization (5 points; designed to be used as extra credit if you desire)** – As a student, you may join a science teaching professional

organization(s) at a significantly reduced rate. Examples include NSTA (National Science Teachers Association www.nsta.org), CSTA (California Science Teachers Association www.cascience.org), OCSEA (Orange County Science Educators Association www.ocscience.org), NABT (National Association of Biology Teachers www.nabt.org), AAPT (American Association of Physics Teachers www.aapt.org), ACS (American Chemistry Society www.acs.org), or others listed in the Reference list. Joining the NSTA through the Chapman University NSTA Chapter gives you access to their online resources including full online journal access to their four journals and discounts on any NSTA product or conference (and costs only the price of the Chapman chapter's dues; if you choose to join Chapman's NSTA chapter DO NOT join NSTA through their website; you must join at a meeting). Written proof of membership must be presented to the instructor prior to the last day of class to receive credit.

For post-baccalaureate work at Chapman, the grade of "B" is considered above average, and the grade of "A" is awarded only in cases of clearly exceptional performance. Students working toward a teaching credential or a Master's degree are expected to maintain a 3.0 ("B") GPA.

Because developing as a professional educator includes reflection on prior practice and revision based on feedback, if you are not satisfied with the assessment of your performance on an assignment, you may revise it based on feedback and resubmit it for reconsideration *up until one week before the final exam date* (to allow for adequate time for grading). Assignments due in the last week of class may not be resubmitted. The original assignment must be included when resubmitting.

Make Up Exams:

Permission for a make-up examination will be granted by the instructor only **in advance** of the exam **and/or** due to extreme health emergency (documented hospitalization, quarantine, or severe illness under a doctor's care), automobile accident verified by a police/insurance report, or attendance at a university-required activity (i.e., CU varsity athletic event for which you are a team member, etc.). Make up exams will not be the same exam as given at the scheduled day/time.

Incompletes:

A grade of Incomplete (I) will be given for this course only in the case of documented severe illness occurring after the last date to withdraw from the class (see CU academic calendar). Because class participation is essential to developing as a future educator, if a grade of Incomplete is granted, the student may be required to attend all class sessions of EDUC 530-S in a subsequent semester as part of making up the incomplete.

Grading Scale:

100-96	A
95-91	A-
90-87	B+
86-84	B
83-80	B-
79-77	C+
76-74	C

73 and below: Student should seek advisement regarding continuing in the credential program.

Fieldwork:

Credential candidates in EDUC 530-S are required to concurrently enroll in EDUC 530P *Praxis*. Substantial portions of the assignments in 530-S must be completed during the 20 fieldwork hours of 530P *Praxis*.

Teaching Performance Expectations (TPEs) & Teaching Performance Assessments (TPAs):

All credential candidates are required to successfully meet each of the 13 Teaching Performance Expectations. At the end of the program, each candidate will participate in an exit interview in which s/he presents a program portfolio documenting the TPEs with both a descriptive narrative and artifacts for each element of each TPE. All credential candidates are required to successfully complete four Teaching Performance Assessments before they are recommended for a credential.

Honorable Academic Behavior – Academic Integrity:

Honorable Academic Behavior refers not only to in-class behavior, but also to the quality of assignments and presentations handed in for grading. The following mandatory guidelines will help maintain a positive learning environment for all students:

1. **Cell phone usage** ~ It is understandable that many persons, particularly parents or adult caregivers attending evening courses, need their cellular phone turned on in order to keep in contact with their minor children, spouse, or care provider. However, please refrain from talking on cellular phones inside of the classroom. Also, please turn the ringer to either vibrate or one beep, if your cell phone does not have a vibrate option.
2. **Plagiarism** ~ Plagiarism refers to representing work as your own without giving credit to the original author. *This includes materials (such as lesson plans and classroom activities) that are in the public domain or reproducible. Paraphrasing another person's work without citing the author is also plagiarism.* For this course, turning in work that you completed for another course is also unacceptable. All university policies pertaining to plagiarism will be enforced in this course. You can read these policies in the appropriate sections of the Chapman Code of Conduct (posted on Blackboard). *If you plagiarize in this course, you will receive a course grade of F and may be subject to additional sanctions as permitted in the Code of Conduct.* You may also wish to visit the following websites: <http://www.plagiarism.org> and <http://www.turnitin.com>.
3. **Late Assignments** ~ Developing as a Professional Educator (one of the six domains of the *Teacher Performance Expectations*) includes modeling efficient time management skills. The 530 instructor is charged with evaluating how effectively you, as future teachers, meet professional and academic responsibilities. This includes handing in professionally completed assignments on-time. *Failure to hand in assignments on the date due may result in a grade of zero (0) for the assignment.*
4. **Attendance** ~ *Class attendance is mandatory.* Five points will be deducted from the overall course grade for each undocumented/unexcused absence. Documentation should be provided to the instructor at the next class session after your absence, if not available prior. Please see the instructor during office hours to discuss any extenuating medical circumstances that would result in recurrent absences. You will be held accountable for all materials covered and assignments or assessments administered during your absence(s).

While attendance is one of the most important factors contributing to success in this course, you are asked to please consider the health of all persons in the class and not attend class if you have a contagious illness.

5. **Timeliness** ~ Please make every effort to come to class on time, and to attend the entire session. Please let the instructor know in advance if you will need to arrive late or leave early. Points may be deducted from your overall grade for tardiness or early departure. You are responsible for all material presented or discussed during time you have missed.
6. **Eating/drinking in class** ~ Students are welcome to eat or drink during class as long as it is discrete, inoffensive to other students, and trash is properly disposed. Please keep in mind that the entire class may be asked to refrain from eating if someone has a particular food allergy or medical condition that would be exacerbated by the presence/odor of food, or particular types of food (e.g., peanut compounds), in the classroom. If you have such a condition, please let the instructor know at your earliest convenience.
7. **Writing Styles** ~ Three writing styles will be used during the course:

A. Professional Academic

This type of writing is typically found in professional journals. First person pronouns are rarely used. Professional academic writing must follow the guidelines of the American Psychological Association (APA). Supporting evidence is clearly documented and credit given to sources using APA format.

Use professional font (Times, Times New Roman, or Arial *only*), 12 point type, black ink, double space (no more than 3 lines per vertical inch), and 1” margins on all sides of the page. At the top of each page in the header, place your name and the course number and title of the assignment as well as the page number (see below).

Sample header:

Miller, R.G. EDUC 570 Chapter 3 Assignment: Diversity Response Paper 1

Cover pages should include only student name, course number, paper title (if applicable), assignment name, and date submitted. *Please, no photos or artwork on cover pages.* Place one staple in the upper left hand corner if submitting more than one page; no paperclips.

B. Professional Classroom

Professional classroom writing may be submitted either in printed or handwritten format, dependent on the assignment. For example, sample lesson plan book pages may be submitted in handwritten format; whereas, a parent letter should be submitted typed. This is the type of writing that is standard once in the classroom and practicing the teaching profession.

C. Journal/Log

Journal writing may be typewritten, if done for a homework assignment, or completed by hand. This is free-flow writing where the author may complete the work in a comfortable writing style concentrating on writing down thoughts, ideas, concerns, etc., and paying little attention to spelling and grammar.

Students with Special Needs:

If you have presented the Chapman University Center for Academic Success (CAS) with recent documentation of a learning disability or are in need of accommodation due to physical disability, please make an appointment with the instructor to discuss any academic accommodations you need prior to the start of the semester or during the first week of classes. If you need academic accommodations and have not presented CAS with documentation, please contact them to make arrangements. Upon individual and advanced request, this syllabus and all instructor-developed materials can be made available in alternate forms.

Special requirements for the Praxis placement:

The candidate will need transportation to the assigned secondary school location. If a student cannot drive him/herself, please notify the Praxis Instructor as soon as possible so that every effort may be made to place that student in a school that is accessible by public transportation. Students who require ADA (Americans with Disabilities Act) accommodations should also notify the Praxis Mentor so that they are placed in a school that fully meets ADA specifications.

Essential Facilities and Equipment:

The room assigned for this class should have technology access, including high-speed internet connection, large-screen LCD projection with speakers, VCR and DVD. It should have movable tables and chairs to facilitate collaborative work.

References:***Science Education Books***

- Barhydt, F. & Morgan, P. (2002) *The Science Teacher's Book of Lists*. Jossey-Bass.
- Beller, J. (1985) *Experimenting with Plants*. ARCO.
- Benson, S., et.al. (2004). *Ways to Think About Mathematics: Activities and Investigations for Grade 6-12 Teachers*. Corwin Press.
- Brown, J. (1984) *333 More Science Tricks & Experiments*. Blue Ridge Summit, PA. Tab Books.
- Brown, J. (1984) *333 Science Tricks & Experiments*. Blue Ridge Summit, PA. Tab Books.
- Carin, A., Bass, J. & Contant, T. (2004) *Methods of Teaching Science as Inquiry* (9th edition). Prentice Hall.
- Carolso, M., Humphrey, G., & Reinhardt, K. (2003). *Weaving Science Inquiry and Continuous Assessment*. Corwin Press.
- Chiapetta, E., Koballa, T. & Collette, A. (1997). *Science Instruction in the Middle and Secondary Schools*. Merrill.
- Cunningham, J. & Herr, N. (2002) *Hands on Chemistry Activities with Real life Applications*. Jossey-Bass.
- Cunningham, J. & Herr, N. (2002) *Hands on Physics Activities with Real life Applications*. Jossey-Bass.
- Doherty, P. & Rathjen, D. (1991). *The Exploratorium Science Snackbook*. San Francisco, Exploratorium Teacher Institute.
- Doran, R.L. (1980). *Basic Measurement and Evaluation of Science Instruction*. Washington, D.C., National Science Teachers Association.

- Ehrlich, R. (1990). *Turning the World Inside Out, and 174 Other Simple Physics Demonstrations*. Princeton: Princeton University Press.
- Enger, S. & Yager, R. (2001) *Assessing Student Understanding in Science*. Corwin Press.
- Ford, L. (1993) *Chemical Magic* (2nd edition). Dover Publications.
- Fuller, R. (Ed.) (2002) *A Love of Discovery: Science Education, the Second Career of Robert Karplus*. Springer.
- Haber, L. (1992) *Black Pioneers of Science and Invention*. Odyssey Classics Publications.
- Hartman, H., Glasgow, N. (2002). *Tips for the Science Teacher*. Corwin/Sage.
- Herbert, D.(2003) *Mr. Wizard's Supermarket Science*. Random House.
- Herr, N. (1995) *Methods of Teaching Science, Volumes 1 & 2*.
- Hounshell, P. & I. Trollinger (1977). *Games for the Science Classroom*. Washington, D.C., National Science Teachers Association.
- Kardos, T. (1991) *Physical Science Labs Kit*. West Nyak, NY, Center for Applied Research in Education.
- Karplus, R. (1977). *Science Teaching and the Development of Reasoning*. Berkeley, University of California Press. (This is viewed as a seminal work; highly recommended.)
- Keeley, P. (2005) *Science Curriculum Topic Study: Bridging the Gap Between Standards and Practice*. Corwin/Sage.
- Lantz, H. (2004) *Rubrics for Assessing Student Achievement in Science, Grades K-12*. Corwin Press.
- Llewellyn, D. (2005) *Teaching High School Science Through Inquiry: A Case Study Approach*. NSTA.
- Lowery, L. (1985) *The Everyday Science Sourcebook, Ideas for Teaching in the Elementary and Middle School*. Palo Alto, CA. Dale Seymour Publications.
- Morholt, E. & Brandwein, P. (1986). *A Sourcebook for the Biological Sciences*. San Diego, Harcourt Brace Jovanovich.
- National Commission on Excellence in Education. (1983). *A Nation at Risk*. Washington, D.C., United States Department of Education.
- National Science Board Commission on Precollege Education in Mathematics, Science and Technology (1983). *Educating Americans for the 21st Century*, Washington, D.C., National Science Foundation.
- Posamentire, A., Hartman, H. & Kaiser, C. (1998) *Tips for the Mathematics Teacher*. Corwin/Sage.
- Shakhashiri, B. (1989) *Chemical Demonstrations: A Handbook for Teachers of Chemistry*. University of Wisconsin Press.
- Solomon, P.G. (2001) *The Math We Need to "Know" and "Do."* Corwin/Sage.

Trowbridge, L., Bybee, R., & Carlson-Powell, J. (2003). *Becoming a Secondary School Science Teacher* (8th ed.). Prentice Hall.

Trumbull, D. (1999) *The New Science Teacher: Cultivating Good Practice*. Teachers College Press.

Vancleave, J. (1985). *Teaching the Fun of Physics*. New York, Prentice Hall.

Ward, H., Roden, J., Hewlett, C., Foreman, J. (2005) *Teaching Science in the Primary Classroom*. Corwin/Sage.

Yager, R. (Ed.) (1993). *What Research Says to the Science Teacher*. Washington D.C., National Science Teachers Association.

Yurkewicz, W. (1985). *A Guidebook for Teaching Physics*. Boston, Allyn & Bacon.

Science Education Journals

Science and Children (K-6) online and print – www.nsta.org

Science Scope (6-8) online and print – www.nsta.org

The Science Teacher (9-12) online and print – www.nsta.org

School Science and Mathematics

Journal of Research in Science Teaching (JRST)

Science Education

Science Activities <http://www.heldref.org/sa.php>

The American Biology Teacher (NABT)

Journal of Chemical Education

Journal of Geoscience Education

AIMS Magazine (AIMS Foundation)

Smithsonian in Your Classroom – available online free from <http://educate.si.edu/art-to-zoo/azindex.htm>

Chem Matters (ACS)

Connect (is for science and math) – available from Teacher's Laboratory

Journal of Elementary Science Education (JESE) (\$25 per year)
<http://www.wiu.edu/users/jese/subscribe.html>

Electronic Journal of Literacy through Science (EJLTS) – note, this is a free online journal, available at <http://sweeneyhall.sjsu.edu/ejlts/>.

Journal of Computers in Mathematics and Science Teaching

Journal of Science Education and Technology

Journal of Science Teacher Education

Issues in Science and Technology

Electronic Journal of Science Education (EJSE) – this is another full-text online journal that is free. Available at <http://unr.edu/homepage/jcannon/ejse/ejse.html>.

Science Education Professional Societies

Professional Societies for Biology/Health/Life Science Education

- [NABT](#) - National Association of Biology Teachers
- [AAHE](#) - American Association for Health Education
- [CSTA](#) - California Science Teachers Association
- [NSTA](#) - National Science Teachers Association

Professional Societies for Chemistry Education

- [CSUN High School Chemistry Teacher Support Group](#) - Resource for Los Angeles area chemistry teachers and national high school chemistry listserv.
- [ACS](#) - American Chemical Society. [Journal of Chemical Education](#).
- [CSTA](#) - California Science Teachers Association
- [NSTA](#) - National Science Teachers Association

Professional Societies for Physics Education

- [AAPPT](#) - American Association of Physics Teachers:
- [Southern California Section](#) - American Association of Physics Teachers of Southern California
- [CSTA](#) - California Science Teachers Association
- [NSTA](#) - National Science Teachers Association

Professional Societies for Geoscience Education

- [NAGT](#) - National association of Geology Teachers
- [NESTA](#) - National Earth Science Teachers Association.
- [CSTA](#) - California Science Teachers Association
- [NSTA](#) - National Science Teachers Association

General Professional Organizations to Enhance Science Education

- [ASTE](#)- Association for Science Teacher Education
- [ASTC](#)- Association of Science-Technology Centers
- [SACNAS](#) - Society for the Advancement of Chicanos & Native Americans in Science
- [NARST](#) - National Association for Research in Science Teaching
- [School Science and Mathematics Association](#)
- [Science Service](#) - science fairs and scholarship competitions.
- [National Academy of Sciences](#) - Federal advisory board for issues pertaining to science. Authors of the [National Science Education Standards](#).

Secondary Education Books: General

Arnold, H. (2001) *Succeeding in the Secondary Classroom: Strategies for middle and high school teachers*. Corwin.

Burden, P. (2004) *An Educator's Guide to Classroom Management*. Boston: Houghton Mifflin.

Cattani, D.H. (2002) *A Classroom of Her Own: How new teachers develop instructional, professional, and cultural competence*. Corwin.

Crawford, G.B. (2004) *Managing the Adolescent Classroom*. Corwin.

DiGuilio, R.C. (2004) *Great Teaching: What matters most in helping students succeed*. Corwin.

EGgen, P.D. & Kauchak, D.P. (2006) *Strategies and Models for Teachers: Teaching content and thinking skills*. Boston: Allyn and Bacon.

Gabler, I.C. & Schroeder, M. (2003) *Constructivist Methods for the Secondary Classroom: Engaged Minds*. Boston: Allyn and Bacon.

Glanz, J. (2004) *Teaching 101: Classroom strategies for the beginning teacher*. Corwin.

Glasgow, N. & Hicks, C. (2003) *What Successful Teachers Do*. Corwin.

Good, T.L. & Brophy, J.E. (2003) *Looking in Classrooms (9th ed.)* Boston: Pearson.

Gore, M.C. (2004) *Successful Inclusion Strategies for Secondary and Middle School Teachers*. Corwin.

Humphrey, T. (2003) *In the First Few Years: Reflections of a beginning teacher*. Delaware: IRA.

Hurst, B. & Reding, G. (2006) *Professionalism in Teaching (2nd ed.)* New Jersey: Pearson.

Kottler, E., Kottler, J.A., Kottler, C.J. (2004) *Secrets for Secondary School Teachers: How to succeed in your first year (2nd edition)*. Corwin.

Kottler, J.A. & Kottler, E. (2000) *Counseling Skills for Teachers*. Corwin.

Kottler, J.A., Zehm, S.J. (Eds). (2005) *On Being a Teacher: The human dimension (3rd edition)*. Corwin.

Lambros, A. (2004) *Problem-Based Learning in Middle and High School Classrooms*. Corwin.

McEwan, E. (2001). *Raising Reading Achievement in Middle and High Schools*. Corwin.

- McEwan, E. (2005) *How to Deal With Parents Who Are Angry, Troubled, Afraid, or Just Plain Crazy* (2nd Edition). Corwin.
- McGuire, J.V. & Duff, C. (2004) *Conversations About Being a Teacher*. Corwin.
- Mitchell, M.G. (2005) *The Essentials of Teaching in Secondary Classrooms: A basic guide for new teachers*. New Jersey: Merrill.
- Nissman, B.S. (2005) *Teacher Tested Classroom Management Strategies*. New Jersey: Merrill.
- Ornstein, A.C., Lasley, T.J., & Mindes, G. (2005) *Secondary and Middle School Methods*. Boston: Pearson.
- Reagan, T., Case, C. & Brubacher, J.W. (2000) *Becoming a Reflective Educator*. Corwin.
- Solomon, P.G. (2002) *The Assessment Bridge: Positive ways to link tests to learning, standards, and curriculum improvement*. Thousand Oaks: Corwin.
- Stone, R. (2002) *Best Practices for High School Classrooms: What award winning secondary teachers do*. Corwin.
- TenBrink, T. (2003) *An Educator's Guide to Classroom Assessment*. Boston: Houghton Mifflin.
- Tiletson, D. (2005) *Ten Best Teaching Practices: How brain research, learning styles, and standards define teaching competencies* (2nd edition). Corwin.
- Vitto, J.M. (2003) *Relationship-Driven Classroom Management: Strategies that promote student motivation*. Thousand Oaks: Corwin.
- Wachter, J. & Carhart, C. (2003) *Time Saving Tips for Teachers*. Corwin.
- Wilens, W., Bosse, M.I., Hutchison, J., & Kindsvatter, R. (2004) *Dynamics of Effective Secondary Teaching*. Boston: Allyn and Bacon.
- Wood, K.D. & Harmon, J.M. (2001) *Strategies for Integrating Reading & Writing in Middle School and High School Classrooms*. Ohio: National Middle School Association.
- Yell, M.L. & Drasgow, E. (2005) *No Child Left Behind: A guide for professionals*. New Jersey: Merrill.

Prepared by Roxanne Greitz Miller, August 2005

THIS PAGE INTENTIONALLY LEFT BLANK

SYLLABUS RECEIPT

I have received a copy of Dr. Miller's syllabus for _____ (course number)

for the _____ (Fall/Spring/Summer) semester of _____ (year).

I have read this syllabus in its entirety and have had an opportunity to have my questions answered, and agree to abide by the policies and standards set forth therein.

Name _____

Signature _____

Date _____

PLEASE DETACH AND RETURN TO DR. MILLER AT THE SECOND CLASS MEETING