CI 427-900: Science for Teachers 4-8

Catalog Description: 427-3 Science Process and Concepts for Teachers (4th-8th Grade). Specifically designed to develop those cognitive processes and concepts needed by elementary and middle level teachers in the teaching of modern science programs. Prerequisite: CI 426, SCI 210A, and SCI 210B.

Instructor: Carolyn Mohr, cmohr@siu.edu (for Spring 2016 use carolynmohr@sbcglobal.net)

Office: UCLC Science Lab-Room 321
Office Hours: By Appointment
Classroom: UCLC Science Lab-Room 321
Day and Time of each Session: Saturday, 1:45-4:15 p.m. (Two Monday evening meetings at 4:30 p.m. See Course Calendar)
Dates: January 23, 2016 - May 14, 2016
Final Exam: May 7, 2016

Course Structure & Description:
This course is designed to provide you with opportunities to increase content knowledge and develop skills necessary to be an effective teacher of science inquiry. A great deal of class time will be devoted to collaborative group work and “hands-on, minds-on” activities that will allow you to experience doing science. As in CI 426, you will engage in experiences that will uncover essential principles and relationships of various teaching methods commonly associated with science. Throughout the course you will be learning how to teach and assess both science concepts and processes. During the course you will continue working with state and national learning standards for science, you will use nationally recognized science curriculum materials, and you will integrate technology appropriately. Your will be part of a team to design and facilitate a science workshop setting up stations that will engage students in constructing knowledge and in creating a sense of curiosity about the world. You will learn how to promote literacy using science as your vehicle to deliver the best possible student learning experiences.

In CI 427, you will continue to investigate the question, “What is good science teaching?” Activities will provide an open forum for you to construct your own ideas about effective science instruction. Most importantly, this course is designed to increase your comfort, confidence, and competence in using and doing science process skills.

This will be accomplished by:
• Approaching the teaching of science as a way of thinking about teaching and learning science than can be incorporated into any curricula presented by Illinois school districts.
This will include learning how the Standards of Mathematical Practice and CCSSI/ELA (Common Core State Standards Initiative/English-Language Arts) standards can be embedded in science curricula.

- Immersing in the 8 scientific and engineering practices and crosscutting concepts of the New Generation Science standards using nationally recognized science curriculum models.
- Experimenting with those techniques in risk-free settings (Practice precedes perfection).
- Learning how to incorporate and teach inquiry science stations using the 5 E lesson model and a 4-step system (choice, planning, doing, reviewing) that helps promote learning in science and across other disciplines.
- Incorporating key elements into science instruction: observing, representing, organizing, patterning and questioning, experimenting, and sharing and making connections with the NGS (New Generation Science) standards.
- Creating a science workshop with stations designed for elementary science inquiry. *(This project may be used to fulfill some part of the science Gateway requirements.)*
- Expanding your own comfort level, confidence, and competence so that you will make a positive, lasting impact on each child entrusted to your care.

**Prerequisite:** grade of C or better in CI 426, SCI 210B, and SCI 210A. Calendar/schedule with breakdown of each class session and assignments available on LiveText.

**Course Alignment with Standards:**
This course emphasizes the Illinois Professional Teaching Standards, National Educational Standards for Teachers (NETS), the Next Generation Science Standards (now known as the New Illinois Learning Standards-Science), and the Common Core Standards (all accessible through [http://www.isbe.net/ils/default.htm](http://www.isbe.net/ils/default.htm) and LiveText).

**Objectives for CI 427:**
As a result of this course students will be able to:
- Construct a basic understanding of how they will teach science and differentiate instruction for all learners.
- Explore the basic sciences and discover ways to integrate other disciplines, technological applications, concept mapping, reading science materials for comprehension, etc.
- Identify and perform scientific and engineering practices and those science processes such as: observing, inferring, classifying, graphing, collecting data, interpreting data, hypothesizing, controlling variables, and experimenting.
- Demonstrate an understanding of their legal responsibilities as it relates to science safety.
- Critique science education curriculum materials from nationally recognized sources.
- Distinguish between recipe-based activities and learning experiences that promote inquiry, conceptual understanding, and active learning.
- Identify and effectively apply the stages of a learning cycle commonly addressed in a constructivist experience to children’s literature.
- Create a science workshop (or other teacher-approved project) that will demonstrate competence in incorporating thinking routines, process skills, science content and various scaffolding or other “best practice” techniques in order to promote active learning.
and literacy for elementary students.
• Understand the dangers of student misconceptions and utilize ways to identify common misconceptions associated with the teaching of science concepts in the life, physical, and earth/space sciences in the planning of a science workshop.
• Differentiate between formative and summative assessments for science and incorporate formative assessments in a workshop.
• Determine which concepts and process skills are grade-level appropriate to include in a science workshop. The Benchmarks, the Atlas (for Scientific Literacy), the Pedagogical Implications sections of SciPacks and the NGSS website are places that address this.
• Investigate technological support for the teaching of elementary science and incorporate an appropriate use of technology in a science workshop.
• Plug into professional resources that will enhance and strengthen one’s scientific comfort zone.
• Model professional qualities including collaborative skills, active participation skills, preparedness, attentiveness, attendance and the use of effective teaching components of workshops or other lessons presented to peers.

Illinois Professional Teaching (Learning/Responsibilities) Goals for Illinois PT Standards:
Course Objectives include Reflective Classroom Planning, Organization and Management and are designed to give teacher candidates the opportunity to meet the following Illinois Professional Teaching Standards, at a beginning level of competency. As a reflective educational leader, the teacher candidate will be able to utilize the principles and approaches of developmentally responsive pedagogy, Universal Design for Learning, and Response to Intervention in order to:
1. demonstrate an understanding of their responsibility as an ethical, developmentally responsive and reflective practitioner who exhibits professionalism. (IPTS 9B, 9C, 9E, 9G, 9H, 9I, 9J, 9K, 9M, 9N, 9O, 9S, and 9T)
2. demonstrate fluency in technology systems, and use technology to support instruction and enhance student learning and engagement. (IPTS 2L )
3. use a variety of explanations and multiple representations of concepts in planning for instruction. (IPTS 2M)
4. demonstrate an understanding of the Illinois Learning Standards (23 Ill. Adm. Code 1 Appendix D), curriculum development process, content, learning theory, assessment, and student development and knows how to incorporate this knowledge in planning differentiated instruction. (IPTS 3A)
5. evaluate teaching resources and materials for appropriateness as related to curriculum content and diverse student needs. (IPTS 2I )
6. analyze and use student information to design instruction that meets the diverse academic, social/emotional and developmental needs of students. (IPTS 1C, 1D, 1H, 3C, 3F, and 4D)
7. demonstrate an understanding of principles and techniques of evidence-based instructional practices. (IPTS 5B, 5C, 5E, 5F, 5G, and 5H)
8. identify and evaluate effective principles and strategies for management and student engagement in the clinical placement. (IPTS 4A, 4B, 4C, 4D, 4E, 4G, and 4H)
9. demonstrate their understanding of how to develop short-range plans, including transition plans, consistent with curriculum goals, student diversity, learning theory, and the role of technology. (IPTS 3B, 3C, 3E, and G)
CI 426 will specifically address IPTS as written in goals 1,3,4,5,6,7, & 9 above as it relates to teacher preparation.

Course Goals:
The document, “Standards for Science Teacher Preparation”, published by the National Science Teachers Association, Revised 2003, identifies goals for our class as it relates to the teaching of science. (www.nsta.org) This course will emphasize NSTA goals 1 – 9, 12, and 13 listed below.
1. Develop robust science knowledge and skills beyond the depth and breadth needed for teaching
a curriculum based on the National Science Education Standards (NSES) at the grade levels they are preparing to teach.

2. Teach science effectively and appropriately based on the cognitive development of students.

3. Construct science concepts with understanding and reflect on the history and nature of science, including the development of major concepts, theories, assumptions, and tenets of scientific practice.

4. Consider the applications of science in society, the relationship of science to engineering, and the impact of cultural and personal values on science.

5. Create a learning environment that encourages inquiry, which includes the questioning and evaluating of evidence, justifying assertions scientifically, and reflecting on the prospective teachers’ assumptions and practices.

6. Collaborate with a community of learners, including expert science teachers, science teacher educators, and pure and applied scientists.

7. Engage in meaningful laboratory and simulation activities using contemporary technology tools and experience other science teaching strategies with faculty who model effective teaching practices consistent with those expected of the prospective teachers.

8. Understand science-specific pedagogical knowledge grounded in contemporary scholarship and school environments.

9. Observe diverse learners’ ideas of science and prepare teaching plans to help the students develop more meaningful understanding of science.

10. Implement their teaching plans, assess and reflect on the learning outcomes, and adjust their teaching to enhance their students’ understanding.

11. Engage in data-based decision making regarding their teaching behaviors, strategies, and the selection of topics, activities, and materials.

12. Understand how to find and use credible information on the school community, on the curriculum, and on safe and effective use of laboratory activities, independent science projects, science fairs, field trips, simulations, computer tools, and alternative curriculum resources.

13. Develop dispositions for effective science teaching, including a sense of responsibility to students and the community and dedication to the need to grow continually, in part through active involvement in the larger science education community.

Grading Procedures and Scale:
Most assignments will be submitted on Live Text. All assignments are given a letter grade and/or a point value. Your final grade is determined by all the grades/points you have accumulated during the semester minus any deductions for excused and/or unexcused absences and/or tardies. Deductions may also occur for unprofessional/uncooperative behavior being displayed during class or for little effort being exerted.

Live Text assignments need to be submitted by 11 p.m. on due dates. Late assignments are worth half credit. This is non-negotiable. To receive maximum credit be proactive and complete and submit work on or before due dates. Quizzes, exams or major project presentations (and papers) missed due to unexcused absences will be devalued by 50% and must be made up by the next class session for any credit. Please do homework individually unless it is designated as group work. Pay careful attention to providing only original work where required. When referring to the work of others, give proper credit with internal citations and an attached Reference List. Plagiarism means knowingly taking sole credit for anything used by you that was created, discussed, or developed by someone else. Any forms of plagiarism will result in specific penalties as specified by the SIU Student Code of Conduct, which may include a failing grade for the course and possible expulsion from the program. It is simple: Either your original thoughts were the
words that "flowed" and were all your own or you were "inspired" by others’ words, thoughts, or ideas. Others’ words, thoughts, or ideas need to be cited! APA format is followed for internal citations and Reference Lists.

Scale: A = 92% or greater. B = 82 to 91.9% C = 72 to 81.9% D = 60 to 71.9% F = anything below a 60% (subject to change)

*Note: This is a slightly higher scale than for CI 426 as expectations are slightly higher.

Evaluation Procedures:
Evaluation is based on Readings, Discussions, and other Assignments, Participation/In-Class activities, Individual Lesson Plans/Units, Group Lesson Plans/Presentations, Participation/Online Activities, Quizzes, and Final Exam.

Participation/ in class activities = @30%
Reading/Reflections/Assignments = @35%
Lesson Plans/Workshop Unit = @35%
Safety Activities = @5%
Quizzes & Final Cumulative Exam = @5%
Final grades are determined by taking the total points earned and dividing that total by the total number of points possible for the semester.

Course Calendar: See separate document with that title for breakdown of each session’s potential.

General Expectations:
I have an expectation that you will treat the course in a serious manner reflecting your intentions to become a teaching professional. You should show respect for self, peers, staff, instructors, faculty, and materials at all times.
Disruptions to learning cannot be tolerated. Examples of disruptions include, but are not limited to, inappropriate use of electronics, working on non-class related work, non-participation, talking/engaging in activities off topic, and being excessively loud. See below.

Students as Professionals Expectations: Technology is a terrific tool to be used appropriately. Out of courtesy to your instructor and peers, please turn off your cell phone during class & keep your laptop closed unless it is a mutually agreed upon need during class time. Model all professionalism expectations. You will be just one semester away from student teaching. It is expected that professional teaching behaviors will be practiced as you transition roles from student to teacher.

Participation:
Your participation in activities and discussions is essential. You must demonstrate your commitment, interest, leadership, and enthusiasm in the teaching profession. Please share your thoughts and ideas during discussions and cooperate with your classmates during activities. In these ways, each person benefits from the knowledge and skills of the entire class. You will need to participate in activities and discussions in order to get the most out of the course. Activities done in class may be graded and will count towards your final grade.

Required text:

**Science journal:** A student subscription to the science journal, Science and Children, Science Scope, or the Science Teacher is helpful but not required while enrolled in this course. You are eligible to subscribe at the student rate. An NSTA new membership subscription can be accessed at: [http://www.nsta.org/memstudent](http://www.nsta.org/memstudent) Everyone needs to complete a free registration to NSTA. Many journal articles are available through this free registration at no cost. If you are asked to read an article or book chapter that is not free to you, let me know and I will provide an alternate one that IS free.

**Required supplies:** Bringing a personal laptop to class sessions is helpful. Bring your text and any supplies you would normally have on hand when taking a university level class. Bring to the THIRD class session the following: Two trade books about life cycles of butterflies or other insects (this can be checked out of your local library). You may ask for clarification at an upcoming class meeting.

**Attendance:**
Because so much of the learning associated with this class takes place through hands-on activities during the class session, **attendance at all class sessions is required.** As a teaching professional, you are expected to be present and on time. Schedule/reschedule all appointments (Dr., hair, etc…) outside of class time. If you must be absent for any reason, let me know ahead of time so that I can document the absence on a full size sheet of paper when you return to class. Include your name, date(s) general reason for absence and attach relevant evidence to this paper. Excused absences include, but are not limited to, religious holidays, illnesses, or death in the immediate family. If you are late, make sure to speak with me after class. You will lose 2.5 % for each unexcused absence and 1% for each tardy. More than 2 absences or tardies, excused or unexcused, or lack of participation, may result in a drop in your grade or my asking you to drop the course.

**Note on Academic Integrity:**
Careful attention must be made to produce your own original work and to give credit to the ideas of others. Please be aware that plagiarism includes taking credit for ANYTHING created, developed, and/or discovered by another person, including (but not limited to) words, sentences, or ideas. The SIUC Student Conduct Code includes the following possible penalties for plagiarism: failing grade for the work in question; failing grade for the course; revocation of a degree; and other disciplinary actions, including reprimand, censure, probation, or suspension. – See the Morris Library Guide on Plagiarism [http://libguides.lib.siu.edu/plagiarism](http://libguides.lib.siu.edu/plagiarism)

SIU/C uses APA formatting for internal citations and Reference Lists. Ask your instructor at the beginning of the semester if you need suggestions for where to get additional assistance.

**Special Needs Learners:**
Students with special needs are encouraged to discuss these with the instructor. Every effort will be made to make the accommodation(s) necessary to ensure a positive learning experience. Students may also want to contact Disability Support Services, Woody Hall B-150 (453-5738 voice/453-2293 TTY/453-5700 fax) to find out what help they offer.
**Emergency Procedures:** SIUC at UCLC is committed to providing a safe and healthy environment for study & work. Emergency response information will be shared as it is provided by the UCLC. From time to time there may be an emergency drill conducted by UCLC. We will follow all such instructions when disseminated during class sessions. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

**Statement on Inclusive Excellence:**
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ from you is an important part of your education in this class, as well an essential preparation for any career.

**SIU Policy on “Incomplete” as a Course Grade:**
The following text is taken from the 2011-2012 Undergraduate Catalog, p. 32: An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within a time period designated by the instructor but not to exceed one year from the close of the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, not to exceed one year, or graduation, whichever comes first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. Students should not reregister for courses in which an INC has been assigned with the intent of changing the INC grade. Re-registration will not prevent the INC from being changed to an F.

**Resources for additional academic help:**
If you have any type of need for which you require accommodations to promote your learning in this class, please contact me as soon as possible.

**Saluki Cares:**
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. To make a referral to Saluki Cares click, call, or send: http://salukicares.siu.edu/index.html; (618) 453-5714, or siucares@siu.edu

**Official SIU Student Email Policy:** [http://policies.siu.edu/policies/email.htm](http://policies.siu.edu/policies/email.htm)

**SIU Student Conduct Code:**

**LiveText**
Assignments and other useful information will be found on LiveText. *It is your responsibility to check your LiveText account daily to manage your work and look for announcements.*
As your instructor, I will check my email twice in the day. The last time I usually check my email will be around 7:00 pm. Do not expect me to check for any emails after this time. Allow up to 24 hours for a reply to an email once it is opened. Do not expect your instructor to check emails over the weekend (Friday, 12:00, noon, through Monday, 9:00 am).

PLEASE NOTE:

If you need to communicate with your professor, then you should do so via the email listed on the syllabus.

If you post/submit an assignment on LiveText, the instructor is not responsible if it does not appear. For example, a student may forget to include an attachment.

Important Websites:
To access the Illinois Learning Standards (science classroom assessments and performance descriptors): http://www.isbe.net/ils/science/capd.htm
To access the Project 2061 Benchmarks online: http://www.project2061.org/publications/bsl/online/bolintro.htm
To access the National Science Education Standards: http://www.nap.edu/openbook.php?record_id=4962
To access the Case Studies in Science Education videos on demand: http://www.learner.org/resources/series21.html
To access the NASA Education website: http://www.education.nasa.gov/
To access information on misconceptions in science: http://www.amasci.com/miscon/opphys.html
To access more information on misconceptions: http://www.indiana.edu/~w505a/studwork/deborah/
To access the FREE resources at the NSTA Learning Center (follow directions to establish or log in to your account): http://learningcenter.nsta.org/
To access Instructional Strategies Online: http://olc.spsd.sk.ca/DE/PD/instr/index.html
To review Bloom’s Taxonomy: http://www1.appstate.edu/~goodmanj/4401/peerteach/questions.htm
To access information on materials safety sheets: http://www.ilpi.com/msds/faq/index.html
To access an excellent website on classification(using dicotymous keys) and tree identification: http://www.arborday.org/trees/whattree/
Other great sites (check them out): http://www.sln.org/ (Science Learning Network)
http://www.scienceu.com/ (Science U.)
http://www.hhmi.org/coolscience/index.html (Howard Hughes Medical Institute - Cool Science)
http://www.exploratorium.edu/index.html (Exploratorium Museum - San Francisco)
http://www.fourmilab.ch/ (Fourmilab Switzerland)
http://www.teachthechildrenwell.com/index.html (Teach The Children Well - commercial site)
www.strangematterexhibit.com/ (This is from the Teach the Children Well site.)
http://www.johnkyrk.com/ (Cell Biology Animations)
The New Illinois Learning Standards – Science Resources

NGSS Resources:

NRC Report, Guide to Implementing the NGSS
A National Research Council (NRC) report which includes several recommendations for states and district level implementation planning.

Implementing the Next Generation Science Standards: Strategies for Educational Leaders,
Phi Delta Kaplan, by Penuel, Harris, DeBarger which describes strategies that school and district leaders should consider when designing strategies to support NGSS implementation.

NGSS Adoption and Implementation Workbook
Achieve and the U.S. Education Delivery Institute has developed a practical Next Generation Science Standards (NGSS) Adoption and Implementation Workbook for all states.

What Professional Development Strategies Are Needed for Successful Implementation of the Next Generation Science Standards?, Brian Reiser, School of Education at Northwestern University and a member of the committee that wrote the Framework, describes the necessary shifts in teacher knowledge and practice, what makes PD effective and recommendations for PD supporting these shifts.

National Science Teachers Association (NSTA) Learning Center
The NSTA Learning Center contains an archive of all NGSS seminars on various topics.

Practice Briefs from STEM Teaching Tools
A series of practice briefs describing issues and strategies aligned with the NGSS

Teaching Channel Resources

NGSS: A Vision for K-12 Science Education videos
Four short videos from a workshop presented by Brett Moulding and Nicole Paulson showing teachers engaging in the NGSS

Resources for Scientific and Engineering Practices (SEP)
Planning and Carrying Out Investigations
This STEM Education Journal article written by Richard Duschel and Roger Bybee provides an in-depth look at the SEP Planning and Carrying Out Investigations.

Developing a Learning Progression for Scientific Modeling: Making Scientific Modeling Accessible and Meaningful for Learners
A paper by Christina Schearz, et.al. describes the SEP Modeling.

Assessment of the NGSS
Developing Assessments for the Next Generation Science Standards
NRC, Board on Science Education Report providing insight and recommendations for development of classroom and large-scale assessment of three dimensional learning aligned to the Framework and the NGSS.

What Does an NGSS Classroom Look Like?
An Insider Look at the NGSS Classroom
A Blog by Tiffany Lee, Director of Education for the Teaching Channel provides insight into what NGSS looks like in the classroom. This piece also includes several links to related information.

An article written by Joseph Krajcik and Joi Merritt, posted in the NSTA Journals describes modeling in an NGSS classroom.

CI 426 is part of the course work required in the Teacher Education Program; therefore the following information should be studied to understand how CI 426 fits into the general scheme of things:

Teacher Education Program
The Teacher Education Program (TEP) at Southern Illinois University Carbondale is fully accredited by the National Council for the Accreditation of Teacher Education/Council for the Accreditation of Educator Preparation (NCATE/CAEP) and by the Illinois State Board of Education. Spanning the entire university, the Teacher Education Program is administered through the College of Education and Human Services and includes majors from the College of Education and Human Services, the College of Science, the College of Liberal Arts, and the College of Agricultural Sciences. Teacher education programs approved by the State Educator Preparation and Licensure Board (SEPLB) are offered at the undergraduate level in early childhood education, elementary education, special education, secondary education, and in majors and minors that lead to the special certificate to teach K-12 art, music, physical education, and foreign languages.

Teacher Education Conceptual Framework: Preparing Reflective Educational Leaders
The conceptual framework identified by Southern Illinois University Carbondale’s College of Education and Human Services reflects the professional community’s commitment to preparing reflective educational leaders at both the undergraduate and graduate levels. Reflective educational leaders are able to review, reconstruct, reenact, and critically analyze their own and their students’ performances as a means to formulate explanations with evidence. A reflective educational leader fosters his/her professionalism in practice when he/she values students’ myriad identities, equips students with the literacies required to participate in a democratic society, and engages stakeholders to make this learning accessible, rigorous, and relevant. Our conceptual framework views the professional development of teachers and other educational personnel to be an evolutionary and maturational process. Our goal is to prepare a competent, reflective educational leader, ready to assume the responsibilities of educating individuals but with full awareness that his or her induction into the profession continues throughout the duration of his or her professional career. We believe that our teacher candidates not only practice reflective thinking but also become practitioners of reflective action. We believe that effective teaching is characterized by interactions with students to present subject matter, followed by informed reflection on these interactions and presentations. Teachers should make decisions among methods and content based on their competence in both subject matter and pedagogy, rather than acting as technicians following a predetermined curriculum. All unit programs are aligned to the Illinois...
Professional Teaching Standards as well as standards from their respective content areas. The model below represents the three major tenets of SIU’s Teacher Education Program: Literacies, Identities, and Engagement:

**Literacies:**
Reflective educational leaders understand the vast array of literacies students need to function in today’s modern society. This includes knowledge of reading, writing, and aural communication within the content area as well as media, scientific and quantitative literacy (Chessin & Moore, 2004; Crowe, Connor, & Petscher, 2009; Cunningham & Stanovich, 2001; Delpit, 1995; Kear, Coffman, McKenna, & Ambrosio, 2000; Leinhardt & Young, 1996; McKenna & Kear, 1990; Moje, 2008; Perry, & Delpit, 1998; Shulman, 1987; Schwartz, 2005; Wilson, 2006; Wineburg, 2001).

**Identities:**
Reflective educational leaders understand the diverse characteristics and abilities of all students and how these students develop and learn within the context of their social, economic, cultural, linguistic, and academic experiences. Using these experiences they create instructional opportunities to maximize student learning (Brown, 2005; Cramer, 2006; Epstein, 2009; Irvine, 1997; Olsen, 2010; Rose & Meyer, 2002; Vygotsky, 1962/1996; Washburn, Joshi, & Binks-Cantrell, 2011).

**Engagement:**
Reflective educational leaders are ethical and reflective practitioners who exhibit professional engagement by providing leadership in the learning community and by serving as advocates for students, parents or guardians, and the profession (Amatea, Daniels, Bringman, & Vandiver, 2004; Bemak, & Chung, 2008; Hiebert, Morris, Berk, & Jansen, 2007; Keys, Bemak, Carpenter, & King-Sears, 1998; Lach & Goodwin, 2002; Ladson-Billings, 1995; McCann & Johannessen, 2008; Ratts, DeKruyf, & Chen-Hayes, 2007).

**Dispositions**
The professional attitudes, values, and beliefs demonstrated though verbal and nonverbal
behaviors (dispositions) as educators interact with students, families, colleagues, and communities should support student learning and development. These dispositions are:

The candidate demonstrates professionalism:
• dependability and reliability
• honesty, trustworthiness, ethics
• enthusiasm, love of learning and commitment to the profession

The candidate values human diversity:
• shows respect and sensitivity to the learning needs and abilities of all individuals
• shows respect and sensitivity to the diverse cultures, languages, races, and family compositions of all individuals
• strives for best practices to address diverse learning needs and abilities of all individuals
• strives for best practices to address diverse cultures, languages, races, and family compositions of all individuals
• collaborates with diverse peers, professional colleagues, staff and families

The candidate develops professionally:
• engages in ongoing acquisition of knowledge
• engages in development of research-based practices
• assesses own performance and reflects on needed improvements

References


Please note: This is a living, breathing document that may be modified/changed by instructor throughout the course in order to accommodate/differentiate the course content to meet the individual and group needs of the class.
CI 427 Course Schedule*  Spring 2016–Professor Mohr- SIU/C ULC campus Rm321
All sessions are on Saturdays from 10:40 a.m. to 1:10 p.m. unless otherwise noted.

*Class Schedule is subject to change at discretion of professor in order to differentiate instruction and/or meet the needs of individual learners or the group.

**Also note that once LiveText is up and running, ALL Assignments are to be accessed there!

<table>
<thead>
<tr>
<th>Session # and Dates for Spring 2016</th>
<th>Potential Topics</th>
<th>**Possible Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 January 23</td>
<td>Pretest and Introductions Required Text &amp; Syllabus (on LiveText) Begin with Ch 9: What are Workshops? Review determinations of groups and kits</td>
<td>See LiveText (LT) or email/notes for Ch 9 Conversation Starters (CS) 3,4,&amp; 5. See Grading Rubric LT Group Readings to share in class.</td>
</tr>
<tr>
<td>2 January 30</td>
<td>Finish Sharing of Group Readings Venn Diagram compare Traditional science &amp; workshop/stations approach Discuss scaffolding key processes p.139 Go Over Class Schedule Observing a Science Lesson: Use the LiveText Template to complete an observation of a science lesson. Due May 7th. Get into workshop groups by workshops Explaining Workshops – p. 130 Due Tuesday, April 12, 2016 – Written part Due Saturday, April 23 at 8 a.m. Presentations to a Live Audience Determining SciPacks and completing: Due by Saturday, May 7, 2016 – certificate as proof of passing</td>
<td>Chapter 1: As you may notice, the chapters in this text are quite short and the print is large. It should not take much longer to read a chapter than it did to read one or two journal articles from our last course. For Chapter 1 on p. 16, please respond to the 3rd, 4th and 5th conversation starters. (Be sure to include the 3 structures mentioned on p. 11 for the 5th conversation starter response.) Each question’s response should be a paragraph of 7 or more sentences per conversation starter. Interact with the text by including documentation of what page you are referring to as you connect your response to the text’s information. There should be a minimum of one internal citing per question response. Provide a Reference List with the APA formatted information from our text at the end of your assignment. Please note: When LiveText is up and running the grading rubric will be on LT. At a group we decided on Wed. for weekly assignments to be due. Complete SciPack Pre-assessment &amp; email me by Feb. 6th.</td>
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<tr>
<td>3 February 6</td>
<td>Going through the Brainstorms Group Collaboration Work Ch 1 Discussions: Knowing vs. Knowledge, Thinking Routines for Constructing Knowledge, “Teach to the Middle?” Structures that facilitate learning Integrating fictional and factual books into science lessons: Picture Perfect Model: Name that Shell</td>
<td>Read Chapters 2 and 3. Part 1: Jot down the questions that you have from reading Chapter 2. It is a review of things we learned about the nature of science last semester. If there are things you want to have covered again or in more detail, this is the time to note them and share with me. If you have no lingering questions, then write a paragraph explaining what NOS is all about. Part 2: Chapter 3 wants you to reflect on your prior beliefs, efficacy, and self-imposed barriers you have concerning the teaching of science. It introduces the Plan, Do, Review Thinking Process. After reading Chapter 3, write about “brick wall” or barrier you perceive to be real for you. Submit your written response here on Live Text. Be ready to share one in class, too. Part 3: Finally, write a compare and contrast paragraph that connects concept knowledge and content knowledge (see p. 36). Submit your written responses to all three parts of this assignment here. A template is provided on LiveText. Rubric on LT at assignment site.</td>
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<td>4 February 13</td>
<td>Going through the Brainstorms Group Collaboration Work Chs 2 &amp; 3: Dr. Johnson &amp; Cholera breakthrough, Brick Walls, HRASE vs. Bloom’s</td>
<td>Read Chapter 4: pages 51 - 60. Chapter 4 reviews discrepant events and misconceptions from last semester? Respond to the first, fourth and fifth conversation starters. Rubric on LT at Ch4 site.</td>
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<td>5 February 20</td>
<td>Special Guest: Kelly O’Connor Differentiation and Unwapping Standards Use Internet &amp; Technology in Lessons: Ice Sea Book Chapter Act Out Chapter 4: Constructivism, Maturation &amp; Learning, Equilibrium/Disequilibrium, Stages of Cognitive Development Chart</td>
<td>Read Ch. 5 &amp; 6: Read pages 61 - 74. Chapter 5 is about social interaction and learning. What would we do today without the prior wisdom of Vygotsky? Complete responses to the first, second, and fourth conversation starters on p. 74. Read pages 75 - 88. Chapter 6 will complete your understanding of &quot;hands-on, minds-on&quot; learning. Respond to the first and second conversation starter on page 88. Also read &quot;Is the Inquiry Real?&quot; from the Science Teacher, Summer 2009 issue, (pp. 40 - 43, volume 76, issue number 5). We will discuss this article in class. Rubric: LT at Ch5/6 site.</td>
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<td>6 February 27</td>
<td>Workshop Collaboration Chs 5 &amp; 6 Topics</td>
<td>Read Chapters 7 &amp; 8: Read pages 89 -109. Chapter 7 shows us a new way to look at the science processes. Respond to the first, fourth and fifth conversation starters. Read pp. 111 - 126. Ch 8 is about...</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Assignment</td>
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<td>March 5</td>
<td>Workshop Collaboration Chs 7 &amp; 8 Topics</td>
<td>Assignment: Read Science Scope article, &quot;The Fish Kill Mystery: Using Case Studies in the Middle School Classroom&quot;. It is found on pages 16-21 of the February, 2008 issue. For this article, instead of doing the typical annotated bibliography, you are to break the article up into the five daily lessons. For each of the five days, create a science experiences cycle or concept map depicting all of the key experiences being utilized. The key science experiences were explained in Chapter 7 of your text. Name each key experience and explain how it is being modeled in the lesson. This particular assignment may be done in a word document and attached or a hard copy hand drawn and scanned in to be submitted by the due date. Ask to see examples.</td>
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<td>March 12</td>
<td>Workshop Collaboration Classroom Management and the Inquiry Classroom Fieldtrips and Outside Projects Guest: Justine Romero</td>
<td>Read Chapters 10 &amp; 11: Read pages 147 - 166. We have come a long way since last semester when it comes to understanding formative and summative assessments. Chapter 10 will provide support in order to incorporate appropriate assessment tools in your Science Workshop. Respond to the second and fourth conversation starter. Read pages 167 - 186. Chapter 11 provides additional ideas for creating classrooms that invite student participation and anticipation by including technology, field trips and outside projects in your lesson planning. Respond to the second and fourth conversation starter on page 186.</td>
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**Spring Vacation**
March 26, 2016 (20-27)

**Spring Break**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignment</th>
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<tr>
<td>No CI 427 on April 2</td>
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<td>10 &amp; 11 April 9 Double session starts 8 a.m. Workshop Collaboration: Let me know by the end of today’s double session if you will need any equipment from me. Ch 12, Resource A Topics</td>
<td>ALL Workshop Written components due by Tuesday, April 12, 2016. Read Resource B on literature. How do you determine if a book is factual or fictional? What things should you look for or consider in a book of fiction before you use it in your classroom? Share how you used factual and fiction books in your workshops.</td>
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<tr>
<td>12 April 16</td>
<td>Today is Practice Day Resource B Topics</td>
<td>Assignment: Finish SciPack if you have not yet.</td>
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<td>13 &amp; 14 April 23 Double session starts 8 a.m. Workshop Presentations from 8 to 1:10 today.</td>
<td>Wkshp 1: 8:15 - 10:30. Lunch: 10:30 – 11. Wkshp 2: 11:00 a.m. – 1:15 p.m.</td>
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<td>No CI 427 on April 30</td>
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<td>15 May 7</td>
<td>Final Exam –post test Assignment: Community Forums</td>
<td>shared that you thought was particularly helpful. You could even start a new TOPIC if you do not find one relevant to your workshop content. Important: Copy and paste your contribution into a word document and check it for spelling and grammar. After you correct any grammatical errors, post it. You will be expected to make a minimum of two other posts to that or other discussion threads. Often, you will get responses on your post, so check that thread often the first week and be prepared to have an ongoing conversation. When you have a minimum of three posts, submit them on template in live text.OBSERVATION WRITE UP DUE TODAY!</td>
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<tr>
<td>16 May 14</td>
<td>Field Experiences to Student Teaching Observation write-ups shared.</td>
<td>Last Session – Possible Field Trip</td>
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SAFETY AWARENESS FACTS AND EDUCATION

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES

SIU Online:

Syllabus Attachment
Spring 2016

http://pvcaa.siu.edu/

IMPORTANT DATES *

Semester Class Begins: ..............................................01/19/2016
Last day to add a class (without instructor permission): .................01/24/2016
Last day to withdraw completely and receive a 100% refund: .........01/31/2016
Last day to drop a course using SalukiNet: ..................................04/03/2016
Last day to file diploma application (for name to appear in Commencement program): ..................................................02/12/2016
Final examinations: ..................................................................05/09-05/13/2016

Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic webpage http://registrar.siu.edu/

SPRING SEMESTER HOLIDAYS

Martin Luther King, Jr.’s Birthday Holiday 01/18/2016
Spring Break 03/12—03/20/2016

WITHDRAWAL POLICY ~ Undergraduate only

Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/catalog/undergraduatetcatalog.html

INCOMPLETE POLICY ~ Undergraduate only

An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A,B,C,D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/catalog/undergraduatecatalog.html

GRADUATE POLICIES

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY

Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM

Student Conduct Code http://srr.siu.edu/student_conduct_code/

MORRIS LIBRARY HOURS
http://www.lib.siu.edu/about

INCLUSIVE EXCELLENCE

SIU contains people from all walks of life, from many different cultures and subcultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. For more information please visit: http://www.inclusivexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:

Tutoring: http://tutoring.siu.edu/
Math Labs http://math.siu.edu/courses/course-help.php

WRITING CENTER

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY

Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:

SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin
ADVisement: http://advisement.siu.edu/
PROVOST & VICE CHANCELLOR: http://pvcaas.siu.edu/
SIU ONLINE: http://online.siu.edu/