Welcome to TE 804! This course includes the science portion of your internship year coursework. It is designed to help you teach science in elementary classrooms. This course will help you reflect and build on ideas and concepts taught in prior teacher education courses. The focus of this course will be on supporting you in developing standards-based practices in planning, teaching, and assessment. We will concentrate on several main arenas of teachers’ work (see below).

The course is divided into two blocks. The first five-week block will focus primarily on the following:

**Planning a science unit**
- Determining the content and learning goals for your science unit
- Analyzing your curriculum resources
- Assessing your students’ ideas, resources for learning, and special needs
- Developing an instructional sequence to meet the learning goals
- Planning your science lessons to match your students’ resources and needs
- Creating your unit assessment

**Preparing for your classroom learning community inquiry project**
- Identify a goal for your classroom learning community that supports science learning
- Develop a plan for meeting your goal
- Develop a plan for assessing whether you have met your goal

The second six-week block will be your guided lead teaching time. During guided lead teaching, TE 804 will not be meeting. You will be:

**Enacting your science lessons**
**Reflecting on your teaching, students, and classroom learning community**
**Collecting data on student learning, your teaching (using video technology), and the classroom learning community**
The last five-week block will occur after your guided lead teaching. We will focus primarily on:

  Reflecting on and evaluating your unit plan enactment with respect to student learning
  Analyzing a video of your teaching
  Analyzing your learning community results
  Reflecting on your growth over the semester and your philosophy of teaching science

Readings, class activities and discussions will relate to and support these topics.

**COURSE GOALS**

This course is designed to build on your experiences in TE 401 Science, SME 301, and your other teacher education courses. The goals of the course are to develop your competency with the following practices:

**Planning and teaching effective science units**
- Specify an appropriate set of learning goals for a lesson sequence or unit
- Pre-assess students’ knowledge in relation to a set of learning goals
- Analyze curriculum materials to identify their affordances and limitations
- Adapt curriculum materials to reflect “best practice” and meet the needs of your students
- Strategically enact a planned activity sequence or unit to address a set of learning goals
- Assess student progress toward achievement of a set of learning goals
- Evaluate and revise a unit plan and teaching in light of the student learning outcomes

**Establishing an inclusive science learning community in the classroom**
- Identify qualities of an inclusive science learning community to be established in a classroom
- Plan and enact strategies to foster and maintain desired qualities of a science learning community in the classroom
- Identify individual and cultural resources that can enable individual student engagement in the science learning community

**Inquiring into one’s own science teaching**
- Identify a question, problem or innovation to investigate
- Identify evidence to be used and how it will be collected and analyzed
- Collect and analyze evidence
- Interpret the results and their implications for teaching

**Fostering one’s own ongoing professional growth**
- Adopt a life-long learning approach toward teaching
- Develop planning and assessment practices that promote professional knowledge growth
- Participate in professional communities that promote professional growth
COURSE READING MATERIALS

Required Materials

Additional readings listed in the syllabus are provided on the course ANGEL website. Please bring an electronic or hard copy of the readings to class on the day the readings will be discussed. This will allow for a much richer class discussion.

A way to record a lesson of your teaching. This may include borrowing a video-recorder that may need a mini DV tape to transfer to a CD or DVD (you can buy and transfer this for approximately $10 at the College of Education copy center on the 5th floor of Erickson hall), or a video recorder onto memory.

Access to MSU email and the course ANGEL site.

Online Resources

National Science Teacher Association (NSTA) - [http://www.nsta.org/](http://www.nsta.org/)
This is the website associated with the professional organization for teaching science in the country. You can become a member for $34 (highly recommended) and get their terrific magazine, access to fabulous books (trade and professional development), connect with other new and experienced teachers over list serves, get access to instructional video, materials and the like.

Michigan Department of Education GLCEs
The Science Grade Level Content Expectations (GLCE) were adopted in December, 2007. An electronic copy of the GLCEs is available on the Angel course website and at: [http://www.michigan.gov/documents/mde/Complete_Science_GLCE_12-12-07_218314_7.pdf](http://www.michigan.gov/documents/mde/Complete_Science_GLCE_12-12-07_218314_7.pdf)


You may purchase a hard copy or download the text by going to the following link: [http://books.nap.edu/catalog.php?record_id=11625#toc](http://books.nap.edu/catalog.php?record_id=11625#toc)


You may purchase a hard copy or download the text by going to the following link: [http://www.nap.edu/catalog.php?record_id=9596](http://www.nap.edu/catalog.php?record_id=9596)

You may purchase a hard copy or download the text by going to the following link: [http://www.nap.edu/openbook/0309062357/html/index.html](http://www.nap.edu/openbook/0309062357/html/index.html).


You may purchase a hard copy or download the text by going to AAAS at: [http://project2061.aaas.org/publications/bsl/online/bolintro.htm](http://project2061.aaas.org/publications/bsl/online/bolintro.htm).

**COURSE REQUIREMENTS AND GRADING**

TE 804 is part of a larger preparation and certification program. Please be sure to familiarize yourself with the Professional Conduct Policy as outlined in the *Guide to the Elementary Internship* on CD. This policy addresses attendance and punctuality, confidentiality, professional dress and deportment in schools, alcohol and illegal drugs, and professional communications.

**Assignments**

Below is a list of major assignments for the course and the point value they hold towards your final grade:

- Curriculum Materials Analysis ..........................................................5
- Video and Analysis of Your Science Teaching.................................10
- Science Unit Plan
  - Learning goals and EPE table.....................................................10
  - Assessment of students’ prior knowledge for science........5
  - Instructional sequence..............................................................10
  - Lesson plans..............................................................................10
  - Post Assessment and Analysis..................................................15
- Science Learning Community Inquiry Project and Presentation...25
- Attendance and Participation (i.e., course reading)..................10

**TOTAL.................................................................100**

**Short readings might be assigned throughout the semester.**

**Brief Assignment Descriptions**

1. Science Unit Plan – You will prepare a complete plan for 3-4 weeks of science instruction (approximately 9-12 days of instruction). Plans include:
   a) Learning goals and EPE (Experiences, Patterns, Explanations) table
   b) Student pre-assessment (includes student ideas and student cultural resources for learning science)
   c) Analysis of curriculum materials, teacher guides, activity guides
   d) Instructional sequence – order of activities
   e) Lesson plans (at least 3); plan to present one for feedback in class. We might also use an ANGEL Blog for reflections/updates.
2. Video Teaching Analysis – We can learn much from watching ourselves teach. You (or someone else) will videotape one lesson of you teaching science in the classroom. You will select a clip (10 minutes) of the video to show to a small group of peers to get feedback, and then write up a short analysis of your own teaching. This clip could also provide information about your science learning community inquiry project (optional). Be sure to try your videotape setup to make sure you can hear students’ voices.

a) You can check out video cameras and tripods from the Technology Interns (TIES) in Erickson room 133. They suggest that you reserve the equipment 2 weeks in advance 355-8437, ties@msu.edu.

b) If you use a video recorder that needs a mini DV tape, you will need to purchase your own tape and have the tape burned to a CD or DVD for use in class. You can share your video with one another on laptops; it is a good idea to test this out ahead of time to make sure it works.

3. Science Learning Community Inquiry Project – Teaching science is about more than presenting content or activities. The climate of your classroom, the expectations that you have for students, and the overall management of the students and events greatly affects your teaching and your students’ learning. This project is designed to support you in teaching science. You will design and implement a plan that supports development of one aspect of a science learning community that you would like to foster in the classroom. This project includes:

a) Science learning community plan
b) Implementation of your plan and collection of evidence about how well it worked
c) Learning community analysis & reflection

4. Science Teaching Presentation – You will share what you learned from your Science Learning Community Inquiry project with your peers and present your science teaching philosophy (grounded in your specific experiences and the readings) in preparation for how you might present this to potential employers and parents. This presentation will take place the last day of class.

5. Participation & Professional Conduct – This includes doing the course readings, participating in class discussions, arriving at class on time, turning in all assignments on time, and conducting yourself professionally in class and in your field placement classroom.

Grading

Attendance, Preparation, and Class Participation: The success of any professional seminar hinges on active participation by each member. Each member is expected to come to class ready to contribute thoughts and prepare for class each week through readings, writings, observations, information or resource gathering. In this way, each person will not only benefit from his/her own efforts and experiences, but also from those of the whole group.

Because it is not possible to participate if you do not attend, your final grade will be affected by anything beyond one excused absence. This involves having up to 5 points deducted from your final grade. Excused absences include: (a) illness or significant personal emergency (e.g., death in the family) and (b) a significant school-related activity that depends on your leadership (note: this does not include class parties). As in any professional setting, it is your
responsibility to notify the course instructor ahead of time if you are unable to attend or will be late. This can be done by e-mail or voice-mail. You are expected to be on time for class and have assignments prepared on time. You are also responsible for any materials and assignments missed due to absence.

**Turning in Assigned Work:** Assignments are due by midnight (11:59:59 p.m.) on the date indicated on the course schedule; you are responsible for knowing the due dates. Unless you make arrangements in advance of the due date, late papers will be graded as such. Please be in communication with me at all times about your assignment progress. All assignments should be turned in to the Angel Drop Box. Please name your files using the following format: **LastnameAssignmentVersion.docx.** For example: WilliamsLearningGoalsv2.docx. If you turn in revisions after the original due date, please send me an email so that I know to look in the drop box. This will help me get feedback to you in a timely manner.

We hold high expectations for interns as you move towards your professional teaching careers. Formal assignments, such as unit plans, reflections, reflections and analyses, must be word processed and free of grammatical, spelling and punctuation errors. These assignments will be returned to you for revision if they are missing requirements or contain grammatical, spelling and punctuation errors. Revisions will need to be made in a timely fashion and not left until the last day of class.

**Turning in Assigned Work:** Assignments are due as indicated on the course schedule and you are responsible for knowing what the due dates are. Unless arrangements are made in advance of the due date, late papers will be graded as such.

The following grading scale will be used:

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<tr>
<th>Points</th>
<th>Four point scale</th>
<th>Description</th>
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<tbody>
<tr>
<td>95-100</td>
<td>4.0</td>
<td><strong>Outstanding, exemplary work.</strong> Uses and integrates readings, classroom discussions, and teaching experiences (where appropriate) to inform the writing. Meets all the requirements of the assignment, is deeply thoughtful, and provides many details and examples to support writing. No errors in grammar, punctuation, spelling.</td>
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<tr>
<td>90-94</td>
<td>3.5</td>
<td><strong>High quality work.</strong> Uses many readings, classroom discussions, and teaching experiences (where appropriate) to inform the writing. Meets all the requirements of the assignment, is thoughtful and provides some details and examples to support writing. Very few errors in grammar, punctuation, spelling.</td>
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<tr>
<td>85-89</td>
<td>3.0</td>
<td><strong>Good quality work.</strong> Performing at expected level for internship year. Uses some readings, classroom discussions, and field experiences to inform writing. Meets all requirements of assignment, shows attempt to engage with purposes of assignment, provides details and examples to support writing. Few errors in grammar, spelling.</td>
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<tr>
<td>80-84</td>
<td>2.5</td>
<td><strong>Work below expected level of quality for the TE program.</strong> Does not include appropriate references to relevant readings, class discussions, and teaching experiences to inform writing. Does not meet all requirements of assignment. Limited attempt to engage with purposes of assignment, few details and examples to support writing. Many errors in grammar, spelling.</td>
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and punctuation.

<table>
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<tr>
<th>75-79</th>
<th>2.0</th>
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<tr>
<td><strong>Significantly below expected level of quality.</strong> Many errors in grammar, spelling and punctuation. Shows little evidence of having read course readings, of uses of classroom discussions or of field experiences. Meets few of the assignment’s requirements. Shallow attempt to engage with purposes of assignment, no details or examples to support writing.</td>
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**Incomplete Grades:** MSU policy is that the ‘I’ (incomplete) grade may be given only when the student (a) has completed at least 12 weeks of the semester, but is unable to complete the class work and/or take the final examination because of illness or other compelling reasons; and (b) has done satisfactory work in the course; and (c) in the instructor’s judgment can complete the required work without repeating the course.” For the entire grading policy at MSU, please visit: http://www.reg.msu.edu/default.asp.

**Course Policies**

**Professional Conduct Policy:** The teacher preparation program has a professional conduct policy for teacher candidates. It addresses such matters as attendance and punctuality, confidentiality in discussions of or writing about school personnel, professional dress in schools, alcohol and illegal drugs, and professional communications. Please see the content of this policy on the web page: http://education.msu.edu/academics/undergraduate/professional-conduct.asp.

**Academic Honesty and Integrity.** We assume that the student is honest and that all course work and examinations represent the student’s own work. Violations of the academic integrity policy such as cheating, plagiarism, selling course assignments or academic fraud are grounds for academic action and/or disciplinary sanction as described in the university’s student conduct code. **Incidents of plagiarism are taken very seriously and will be pursued.** Students are strongly cautioned not to copy any text verbatim on class quizzes, tests, reports, projects, or other class assignments without using appropriate quotations and source citations – this includes any material obtained online. For University regulations on academic dishonesty and plagiarism, refer to: http://www.msu.edu/unit/ombud/plagiarism.html. As teachers, academic honesty and integrity take on additional meanings beyond the implications for you as a student. The professional relationships you build with your colleagues, including classmates, instructors, your CT and other teachers are a vital part of your professional identity. Developing and maintaining these relationships are as important as any consequences that might arise from incidents of academic dishonesty.

**Electronic Mail and Angel:** MSU Email and the Angel course management system will be used during this course. If you have an alternate email address, please have your mail forwarded from your MSU account. **Please read your email between class sessions, as I may contact you with information that pertains to the next session.** If you receive a message that information has been posted on Angel you are responsible for accessing it. **Also, please set your Angel mail to forward to your MSU account.**

**Laptops, cell phones, other electronic devices:** Technology in the classroom provides us with wonderful tools that can help us accomplish many things we wouldn’t be able to do without them. But technology must also be used wisely and appropriately. You are encouraged to bring and use a laptop in class as long as you are using it for class purposes. Please refrain from surfing
the web, checking email or your facebook page, chatting (or IMing), playing games (i.e. Sudoku) or conducting other activities that do not pertain directly to the class activities happening at the time. Also, please turn off cell phones, pagers, ipods, etc. during class. Your classmates and I thank you for this respect.

Professional Development Time: Per the policy requirements described in the Internship Handbook, interns have up to three hours per week for professional development time (only during weeks when we have class sessions). Many activities may take place in the internship classroom, while others may take place somewhere in the school, at another school, or in the community. Interns must discuss in advance with their CTs their plans for using their professional development time so that there is ample notice if they are not going to be in the classroom. The following are general suggestions for use of this opportunity, and other suggestions will be given throughout the semester.

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<th>Prior to Lead Teaching</th>
<th>After Lead Teaching</th>
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<tr>
<td>Study curriculum materials and documents</td>
<td>Visit another classroom or school to explore alternative approaches to science instruction</td>
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<tr>
<td>Investigate science resources for lead teaching</td>
<td>Analyze artifacts collected during lead teaching for your professional portfolio</td>
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<tr>
<td>Identify needs of special education students and/or ELL students and explore resource support</td>
<td>Meet and discuss ongoing work with colleagues in your building</td>
</tr>
<tr>
<td>Meet and discuss ongoing inquiry work with colleagues in your building</td>
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Confidentiality: See our guidelines on the website: http://education.msu.edu/academics/undergraduate/professional-conduct.asp.

By both professional standards and the federal Family Educational Rights and Privacy Act (FERPA, see http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html), teachers are expected to respect the privacy and dignity of the children and families with whom they work. Likewise, as part of your preparation to enter the teaching profession, we expect you to use discretion when discussing or otherwise representing your experiences in schools. Always take care to protect the identities of children, adults and institutions in all media formats, including your spoken word. Be judicious and thoughtful about the content of stories about the classroom you share, and the contexts in which you share those stories. For example, do not discuss classroom experiences in public settings like restaurants or hallways, or on social media sites such as Facebook. Ask your collaborating teacher if there are additional district or school requirements regarding confidentiality that you must observe. See additional information on the website with respect to interviews, photographs, and portfolios.

Problem solving: If problems arise regarding how this course is conducted, assignment requirements, or any issue that you feel needs to be addressed, your first step should be to contact your course instructor. If the problem is not resolved, the next most appropriate contact person is the Team Coordinator (Sally Labadie: labadies@msu.edu), then the TPP Team Leader (Sharon Schwille): schwille2@msu.edu.
Accommodations for Disabilities. It is Michigan State’s policy not to discriminate against qualified students with documented disabilities in its educational programs. If you have a disability-related need for modifications in this course, contact your instructor and the Resource Center for Persons with Disabilities. Instructors should be notified as early in the semester as possible. For an appointment with a counselor, call 353-9642 (voice) or 355-1293 (TTY). Instructors in the course may request a VISA Form (Verified Individual Student Accommodations Form) from a student requesting services. The OPHS website is at http://www.rcpd.msu.edu/Home/.

Counseling Center. Even normal, capable, intelligent, and reasonable persons like the members of this class sometimes face situations and problems that they find difficult to deal with by themselves. The teacher preparation program instructors or cluster leaders might be able to help. Also, MSU has an Office of Student Affairs and Services, with a Counseling Center, for which the phone number is 355-8270. The Center is at 207 Student Services Building.

Writing Center. Teachers are models and coaches of writing for their students, and must communicate effectively in writing with colleagues, parents, and others. For those reasons, teacher candidates are expected to write effectively and conventionally. If you need more help in meeting those expectations than you can get from your instructors and other teacher candidates, try the College of Education Office of Student Writing Assistance (OSWA), 513F Erickson Hall, phone 517-432-0425 or email campbell@msu.edu. In addition, the Writing Center at 300 Bessey Hall, 432-3610 is available. Grammar Hotline: 432-1370. Website: http://writing.msu.edu/

Rights and Responsibilities of Students: http://splife.studentlife.msu.edu/rights-and-responsibilities MSU students' rights and responsibilities are an important counterpart to MSU's Code of Teaching Responsibility (see the Elementary Program website).
TENTATIVE COURSE SCHEDULE

I. WEEK ONE (January 13-14)

January 13 Class Meeting: What does it mean to think scientifically?
- Getting acquainted
- Preview the syllabus
- Exploring science through “A Private Universe: Minds of Our Own”
- Plan for field trip to the Planetarium

January 14 Class Meeting: What is the nature of children’s scientific reasoning and how might this impact our teaching? [Room 228 Erickson Hall for this day ONLY]
- Analysis of teaching: Sister Gertrude Hennessey (2nd grade, open-ended investigation)
- Small group discussion of today’s reading, “Experience, Patterns, and Explanations”
  1. How do the ideas in the reading relate (or not relate) to the science teaching you have seen or thought about?
  2. In your work group, try to apply the EPE reading and Eyes on science reading to Sister Gertrude Hennessey teaching.
- Discuss learning goals assignment due next week
- Field trip to the Planetarium

Reading:


(Optional readings):

II. WEEK TWO (January 20): Planning your science unit: Determining the content and learning goals for the unit; Science learners and their tool kits
- Class discussion on the readings “Assessment in the contexts of teaching” and “Anti-deficit perspective: A strengths-based approach to science teaching and learning”
- Discuss “what does it mean to pre-assess students’ prior knowledge”
• Work session on your science units: (a) refining your learning goals, and (b) discussing draft of pre-assessment tasks or questions for assessing students’ learning that are due next week

**Assignment due:**
Draft of learning goals: (a) practices; (b) experiences, patterns, and explanations; (c) central question and ideal response; and (d) concept map

**Readings:**


(Optional Reading):

### III. WEEK THREE (January 27):
Planning your science unit: Science learners and their toolkits; Inquiry-Application Instructional Model and analysis of curriculum materials

• Share findings from pre-assessment with your work group
• Discuss I-AIM Model (including sequence of instructional activities) and science curriculum material analysis
• Work session on your science units

**Assignment due:**
Bring your pre-assessment tasks to share with your work group

**Readings:**

Inquiry and Application Instructional Model (1 page handout)

### IV. WEEK FOUR (February 3):
Instructional sequencing (continued) and learning communities

• Discuss science inquiry project
• Discuss video of your science teaching and analysis paper
▪ Work session on post-assessment plan

_Assignment due:_
Curriculum materials analysis (final) due
Instructional sequence (draft) due; share in working groups

V. WEEK FIVE (February 10): Productive discussions, lesson planning, and learning community project
- Small group discussion of today’s readings and how they can apply to your own teaching
- Share lesson plans in working groups
- Work session on science inquiry project
- Discuss videoing your science teaching

_Assignment due:_
Learning Community Inquiry Project plan
One Elaborated Science Lesson Plan due for feedback

_Reading:_


VI. WEEKS SIX THROUGH ELEVEN (February 17-March 24): No Class Meeting – Guided Lead Teaching

VII. WEEK TWELVE (March 31): Reflecting on your experience teaching the unit: Implications of students’ results for evaluating the unit and your teaching
- Work session on analyzing your students’ work (i.e., post-assessments) from guided lead teaching
- Share/analyze videos together

_Assignment due:_
Video of your science teaching and analysis paper

_Reading:_
VIII. WEEK THIRTEEN (April 7): Spring Break – No Class Meeting

IX. WEEK FOURTEEN (April 14): Articulating your science learning community
   ▪ Work session on inquiry project
   ▪ Continue to share/analyze videos together if needed

   **Assignment due:**
   Science Unit Plan, including post-assessment analysis and final unit reflection

X. WEEK FIFTEEN (April 21): How can technology enhance your science teaching?
   ▪ Learning technologies presentations
   ▪ Exploration of online resources

   **Assignment due:**
   Science learning community (inquiry) project report

   **Reading:**
   TBA

XI. WEEK SIXTEEN (April 28): Last day of class: Reflecting on your professional development; Class presentations
   ▪ Class presentations of science learning community inquiry projects
   ▪ Suggestions for next year’s interns

   **Assignment due:**
   Preparation for inquiry project presentation