

# Syllabus for Fall 2021 TE 936: Teaching for Contemporary Visions of Science Learning

## Class Information

### Time

Thursdays, 4:10 pm – 7:00 pm

### Location

224 Erickson Hall

### Website

<https://tinyurl.com/TE936-F21>

## Your Instructor

### Name

Alicia Alonzo

### Email

alonzo@msu.edu

### Cell Phone

319-621-8994

### Office Hours

By appointment<sup>1</sup>

[Zoom](#) or 307 Erickson Hall

## Setting the Stage

As we embark on this new semester together, I want to acknowledge the range of emotions that come along with the transition back to face-to-face instruction. The COVID-19 pandemic has caused many challenges and much uncertainty in all of our lives—and will likely continue to do so throughout this semester. While, for many of us, there is enthusiasm about being back on campus (or being on campus for the first time!), we may be carrying with us the grief and trauma of our experiences over the past 18 months. We will all need to build new social norms and navigate interactions as we aim for some degree of “normalcy” amidst circumstances that are quite different from 18 months ago. We may have anxiety about leaving spaces we have created to protect ourselves (both physically and emotionally)—and these anxieties may be heightened for those from marginalized groups, who may have experienced online instruction as a break from day-to-day microaggressions experienced in our classrooms and other spaces on campus. In addition, as we move forward into these new circumstances, we are not yet in a

---

<sup>1</sup> Over the years, I have found fixed office hours to be largely ineffective. Often, the time(s) I choose do not work well for students, who are then reluctant to ask for appointments outside of official office hours. Although “by appointment” office hours place some burden on students to schedule time to meet with me, ultimately, I believe they provide more flexibility in meeting times and, thus, greater opportunity for dialog. Please do not interpret the lack of fixed office hours as unwillingness to meet with you! Indeed, as indicated below, there will be times when you will be expected to set up out-of-class meetings with me as part of our work together in the course. For students new to doctoral study, I encourage you to view meetings with professors as an expected part of this new endeavor, rather than an indication of a problem or deficiency.

“post-pandemic” world. There is still much uncertainty about how the virus will continue to impact us (individually and collectively) over the next few months.

I hope you will find joy in the human connections afforded by opportunities for face-to-face interactions this semester. At the same time, I hope you will join me in approaching this semester with an attitude of flexibility, a commitment to giving grace to ourselves and others, and a spirit of resilience. I hope you will learn a lot in this course, but I also prioritize supporting you as a human being coping with what remains an unprecedented and evolving situation.

## **COVID-19**

Guiding our work together will be the following principles, grounded in MSU’s [mission statement](#) and relevant principles from the Department of Teacher Education [Core Principles](#):

1. Above all else, we will prioritize health (both physical and emotional) and safety.
2. We recognize that all of us is experiencing the pandemic in unique ways, and no one’s experiences will be minimized.
3. We will work to make the course as accessible as possible.
4. We will work to make the course as equitable as possible.
5. We expect clear and responsive communication among all members of our learning community (between instructor and students, as well as between students).
6. We will need to be flexible about the constraints we are under.
7. We will be reflective about what’s working, what’s not, and work collectively to improve the learning experience for everyone.

According to current MSU policy, all faculty, students, and staff are required to wear a mask indoors. Please note that students are required to wear a mask during class as long as MSU policy mandates. Not wearing a mask during class will result in dismissal of the entire class and follow-up measures with the Department Chair. If the mask mandate is lifted during the semester, you are welcome and encouraged to continue wearing a mask for your safety.

Current policy dictates that we are not permitted to switch the modality of this course (i.e., from face-to-face to fully online). However, if you have been exposed to COVID and need to quarantine (or face other unexpected circumstances this semester), I will work with you to determine appropriate options to ensure that you are able to complete course requirements.

MSU policies may change during the semester. I promise to let you know as early as possible how we will accommodate such changes in our work together.

## **Land Acknowledgement**

We collectively acknowledge that Michigan State University occupies the ancestral, traditional, and contemporary Lands of the Anishinaabeg – Three Fires Confederacy of Ojibwe, Odawa, and Potawatomi peoples. In particular, the University resides on Land ceded in the 1819 Treaty of Saginaw. We recognize, support, and advocate for the sovereignty of Michigan’s twelve federally-recognized Indian nations, for historic Indigenous communities in Michigan, for Indigenous individuals and communities who live here now, and for those who were forcibly removed from their Homelands. By offering this Land Acknowledgement, we affirm Indigenous sovereignty and will work to hold Michigan State University more accountable to the needs of American Indian and Indigenous peoples. – [Land Acknowledgement developed by AIIS.](#)

# Course Information

## Overview of TE 936

Contemporary visions of students' science learning place increased demands on science teachers. What do teachers need to learn in order to teach all students in ways envisioned by documents such as the *US Next Generation Science Standards* (Achieve, 2013), the international *Working with Big Ideas of Science* (Harlen, 2015), and the international science literacy framework for the Programme for International Student Assessment (PISA; Organisation for Economic Co-operation and Development, 2019)? While much of the recent rhetoric in science education has focused on expectations for students, this course will focus on what those expectations require of teachers. Our work will be guided by the following questions:

- What competencies are required for teaching that is consistent with contemporary visions of student learning?
- What do we know about approaches to fostering teaching that is consistent with contemporary visions of student learning?

We will start by “unpacking” several contemporary visions of science learning in order to identify the knowledge, practices, and dispositions that are implied for teachers. Then, we will work together to explore what each competency entails and what research tells us about approaches for supporting teachers in developing the competency. For example, there has been some debate as to the best way for science teachers to learn about “the nature of science.” We may explore the evidence for the different sides of this debate, e.g., arguments for immersive research experiences, explicit study of historical case studies of science, and other more classroom-centered approaches for supporting teachers in developing this knowledge for teaching.

## Course Goals

As a course affiliated with the Science Education Certificate Program, one goal of this course is to support you in gaining familiarity with key literature in science education, especially as it pertains to teaching and teacher development. In addition, although not the main focus of the course, by approaching teaching through the lens of current policies and reforms in science education, the course will also provide exposure to current ideas about goals for student learning.

Relatedly, through our explorations of visions for science learning and teaching, we will take a view of science education that looks beyond the United States. While the *Next Generation Science Standards* have garnered a lot of attention in the US—and in countries around the world—this is not the only vision for students' science learning. We will also consider policies, reform documents, and research from other countries.

From a content perspective, we will work towards the following goals:

1. To deepen our understanding of contemporary visions of science learning from an international perspective;
2. To develop a competence model for the demands of teaching for contemporary visions of science learning and
3. To explore what is known about the competencies required for contemporary visions of science teaching and how these competencies can be supported.

My use of the words “we” and “our” is intentional. While I have proposed an overall structure for

the course and have a set of resources that we can use to achieve these goals, I view this as work we will undertake together. My intent is that will work together to develop a model of teacher competences (in Week 4), which will guide which competences we explore together in Weeks 5-11. Thus, you will play an integral role in shaping the content of our work together. In addition, as students at various stages in your doctoral studies, you have different levels of expertise with respect to scholarly reading and writing. My intent is to provide support to enable you to make progress with respect to both course and program goals, regardless of your starting experiences and scholarly development. From this perspective, I hope you will have a chance to:

1. Improve your ability to identify, critically read, and synthesize scholarly literature;
2. Improve your ability to communicate ideas; and
3. Make progress towards programmatic milestones.

Please let me know if I can tailor your experience in the course to better support your progress towards course and program goals and/or if we should consider any changes as a class to better reach these goals together.

## Guiding Frameworks

Our work in this course is guided by the Core Principles of the Department of Teacher Education:

- **Humanizing Interactions, Practices & Scholarship:** We recognize the importance of attending to the humanizing aspects of our work and that building relationships of dignity and care is ethically necessary across our teaching, research and service.
- **Linking Theory, Action & Practice:** We seek to challenge the status quo of educational scholarship by reflexively engaging practice and theory for the purpose of advancing a graduate and undergraduate teacher education that produces excellence among future teachers and teacher educators.
- **Amplifying Voices:** We value multiple conceptual, theoretical, methodological and translational perspectives paying close attention to diverse and varied voices from communities that are often marginalized in education, including in our own work.
- **Transforming Relationships:** We seek to create trust and reciprocity to both nurture and challenge relationships with communities, students and other partners for the purpose of elevating the profession of teaching.
- **Participating in Public Discourse:** We proactively engage in public discourse with educational leaders, policy makers, and others concerned with education and teacher education.
- **Engaging in Ongoing Critical Self-reflection:** We study, question, debate and revise these dynamic and robust areas of investigation in order to improve our practice.

In addition, we will use the German concept of "competenc(i)es" (Weinert, 2001) as a way of developing a class model for the demands of teaching for contemporary visions of science learning.

## Course Expectations and Requirements

Both the activities planned for class sessions and assignments to be completed outside of class have been designed to support the goals listed above. Below, I have briefly described the major course requirements. As appropriate, additional detail will be available through class discussions and/or separate descriptions, posted to our class website.

# Course Components

## Contributing to Our Collective Learning

### In-Class Participation (15%)

Your participation in our class meetings is essential. Each of us brings different perspectives, experiences, and opinions to a consideration science teaching and teacher development; our conversations are richer when everyone's ideas are represented and available for discussion. In addition, our class meetings are designed to support your individual development with respect to both course ideas and skills essential to scholarship in education. In-class participation is an important means of learning in this course.

Therefore, I expect that you will come to class prepared, having engaged with assigned readings and other activities. I expect that you will contribute to in-class discussions. Although our class is relatively small, I recognize that students will have varying levels of comfort with speaking in the large group. Therefore, we will offer different options for in-class participation (including small group discussions); however, even if you are not initially comfortable sharing your ideas with the whole group, I hope this is something that you will work consciously towards during the semester. For those who are already comfortable speaking in whole group discussions, be aware that welcoming others' voices is also an important means of participation. Please let me know if there is anything I can do to support your participation in class discussions.

### Class Facilitation (25%)

As mentioned above, I view our learning in this class to be a collective activity. In collaboration with me and 1-2 colleagues, you will be responsible for planning and facilitating our consideration of two components of our model of teacher competence (during Weeks 6-11). Please see the assignment description for additional detail about this role.

### Pre-Class Communications (10%)

Because we have a relatively short amount of face-to-face time together each week, it is often useful for us to begin sharing ideas in advance of our class meetings. Not only does this allow us to begin thinking about each other's ideas in advance, but it gives us a chance to hear from those who may feel less comfortable voicing their ideas "in the heat of the moment." Therefore, you will occasionally be asked to post your thoughts to a google doc. (I will ask you to do so in preparation for at least some of the weeks for which I will have a larger role in directing our class discussions, and your colleagues may find this useful as they facilitate our conversations in other weeks.) As a default, please post your responses by 9 am on the day of class. (Please note: We will adjust this deadline as needed, to accommodate your colleagues' plans in Weeks 6-11.)

## Major Assignments

We will necessarily be engaging in a fairly cursory exploration of each teacher competency required for contemporary visions of science learning. Assignments #1 and #2 are an opportunity for you to delve more deeply into one of these competences (perhaps one of the ones you will be helping us to explore in Weeks 6-11).

Your work should demonstrate engagement with the main goal of each assignment (described below). However, you are free to determine the genre of the assignment, and I would encourage you to think about how these assignments can help you to fulfill or support your work towards programmatic milestones or other goals. ***Please discuss your plans with me prior to beginning work on the assignment (and as needed as you are working)*** to ensure that we are “on the same page” regarding your work. If you choose an alternative format (i.e., something other than a written paper), please use the descriptions below as a rough guide for the scope of the assignment.<sup>2</sup>

As a default, I will use the rubric for the departmental comprehensive examination (as a set of criteria towards which you should be developing writing proficiency). However, if you choose to work in a genre for which this rubric is not appropriate and/or if you feel as if a different type of feedback would be more useful to you, please talk with me about a more appropriate evaluation tool.

If you need additional support with writing, please contact the [Writing Center](#) at 300 Bessey Hall and other campus locations.

The citation format for this course will be APA. Please reference [Purdue University's Online Writing Lab \(OWL\)](#) provides quick guide to APA formatting and style.

Please submit all written work on the assignments below as Word documents. (For other genres, please consult with me about the best way to share your work.)

### Assignment #1 (20%)

Select one competency from our model and explore one of the following:

- The nature of the competency,
- How the competency supports aspect(s) of contemporary visions of science learning, or
- Approaches to support development of the competency.

This assignment could take different forms. For example, you might explore how the competence is reflected in different models of science learning and teaching, conduct a literature review about the nature of the competence or its development, or write a persuasive paper about why the competency is central to contemporary views of science learning.

---

<sup>2</sup> In general, I do not find page limitations to be particularly useful, as the purpose of a given piece often dictates its length. Therefore, the approximate lengths listed in the assignment descriptions should not be viewed as a constraint; please talk to me if a significantly shorter or longer paper would better suit your goals for the assignment.

Your (double-spaced) 8- to 10-page paper should be submitted by **October 29**. In addition, you will be asked to contribute specific expertise from your work on this assignment to our conversations in Weeks 12-14.

### Assignment #2 (20%)

This assignment should build on Assignment #1 and demonstrate application of ideas about “your” competence. This could take any form. Here are some examples:

- A research proposal,
- A design for a professional development experience for teachers,
- A design for (a component of) a course or program for pre-service teachers, or
- A tool for evaluating and/or providing feedback on teachers’ proficiency.

However, there are many other possibilities. Be creative!

Your (double-spaced) 8- to 10-page paper should be submitted by **December 10**.

### Assignment #3 (10%)

As a culminating assignment for the course, you will present our class model of science teacher competence in a form that could be used to communicate with an audience other than researchers. This could take any form—e.g., an infographic, a podcast episode, a “teacher brief,” a policy brief. Be sure to identify the audience for your work.

While the length of this assignment is dictated by the genre and audience you choose, I expect this to be a relatively short assignment (e.g., briefs should be a maximum of 2 pages). This assignment should be submitted by **December 15**. In addition, you will be asked to share your ideas during our final exam session.

## Deadlines and Late Work

Course deadlines are intended to keep you on track for work throughout the semester. I especially encourage you to complete weekly tasks on time, as this facilitates the dialog that is central to our work together. At the same time, all of us encounter circumstances throughout the semester that may make it difficult to complete work as planned (e.g., getting sick, an especially busy time for an assistantship, technology troubles). I would much rather work with you to change a deadline than to add unnecessary stress during difficult times or cause you to submit work that you do not feel good about.

Communication is key! I am quite flexible about deadlines for course assignments and am confident that we can negotiate an alternative deadline should you need that. (While there is somewhat less flexibility for work submitted at the end of the semester, I will also work with you if you are having difficulty meeting one of those deadlines.) Please communicate with me as early as possible. (I would prefer that you communicate with me in advance of when an assignment is due, but I understand that this is not always possible.) Communication is important because it allows me to know whether you are okay, gives you a chance to advocate for yourself, and facilitates us collaboratively adjusting deadlines according to your situation and course objectives.

**Important limitation:** Although I hope I will not need to invoke this policy, continually

submitting assignments late without communication could result in a lower grade on the assignments and/or course. Unless otherwise negotiated in advance, all course work must be submitted by the date of our final exam session (Wednesday, December 15) to be counted towards your final course grade.

### **The Grade "I" (Incomplete)**

MSU policy is that "the 'I' (incomplete) grade may be given only when the student (a) has completed at least 6/7 of the term (12 weeks of a 14 week course) but is unable to complete the class work and/or take the final examination because of illness or other compelling reasons; (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: [Grades/Appeal Policies](#).

## **Course Outline**

The course will be structured roughly as follows:

### **Part 1: Developing Our Competence Model of Science Teaching (Weeks 1-4)**

Develop a) a shared vision of science teaching consistent with current "reform" documents and b) co-construct a preliminary competence model of science teaching consistent with this vision.

### **Part 2: "Unpacking" Our Competence Model of Science Teaching (Weeks 5-11)**

Explore competencies in our model to articulate, for each, a) what the competency entails and b) what approaches are used to develop the competency.

### **Part 3: Revisiting Our Competence Model of Science Teaching and Implications for Science Teacher Education (Weeks 12-15)**

In light of our exploration of individual competencies, a) revisit and revise our competence model to reflect current thinking and b) synthesize approaches to developing different competencies to make recommendations for teacher education.

The exact content of the course (and a more detailed outline) will be determined collaboratively in the first three weeks of the semester.

## **Course Policies**

### **Equity and Inclusion**

I intend that students from diverse backgrounds and perspectives be well-served by this course and that the diversity that students bring to this course be viewed as a resource, strength, and benefit. Your suggestions about how to improve the value of diversity in this course are encouraged and appreciated.

We are firmly committed to equity and inclusion in the College of Education. In this course, I will work to promote an anti-discriminatory environment where everyone feels safe and welcome. Accordingly, each of us has the right to be addressed in a way that aligns with our personal



identity. We will have the opportunity in this course to indicate the name that we prefer to be called and, if we choose, to identify pronouns with which we would like to be addressed. I will do my best to address all students accordingly and support classmates in doing so as well.

## Accommodations

Michigan State University is committed to providing equal opportunity for participation in all programs, services, and activities. Requests for accommodations by persons with disabilities may be made by contacting the [Resource Center for Persons with Disabilities](#) at 517-884-RCPD. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the semester and/or two weeks prior to the accommodation date so that I can meet your needs. Requests received after this date will be honored whenever possible.

MSU has a [grief absence policy](#), which you should utilize if you need accommodations due to bereavement or similar emotional distress.

MSU has long had a [Religious Observance Policy](#) that permit students, faculty/academic staff, and support staff to observe those holidays set aside by their chosen religious faith. If a religious observance requires you to miss class, please let me know in advance so I can accommodate your absence.

## Academic Honesty and Integrity

I assume that all assignments turned in as part of this course are honest representations of your own work. Violations of the university's policy on Integrity of Scholarship and Grades, such as cheating, plagiarism, selling course assignments, falsification of records or academic fraud are grounds for academic action and/or disciplinary sanction as described in the policy. Incidents of plagiarism are taken very seriously and will be pursued. You are strongly cautioned not to copy any text verbatim on class assignments without using appropriate quotations and source citations. For University regulations and procedures on academic dishonesty and plagiarism, refer to: [Integrity of Scholarship and Grades](#) and [Academic Honesty and Integrity](#).

**HINT:** The [Purdue OWL site](#) provides some tips on how to avoid plagiarism and how to appropriately cite in your papers.

I hope that you can identify synergy in the coursework and other activities you are undertaking as a doctoral student; however, you should not submit the same work to fulfill requirements in multiple courses without obtaining the permission of both instructors. If you would like to "double dip" in this way (or any other), please consult with me and the other instructor (or other affected party) as soon as possible.

## Use of Media Derived from the Class

You are expected to respect the intellectual property of other members of this learning community:

1. You may share class recordings (if available) with other students enrolled in the class. Sharing is limited to using the recordings only for personal, course-related purposes.
2. You may not post recordings or other course materials online (beyond our course website) or distribute them to anyone not enrolled in the class without advance written permission and, if applicable, any students whose voice or image is included in the recordings.
3. Any student violating the conditions described above may face academic disciplinary sanctions.

## Privacy Statement

MSU expects that you will respect the rights of faculty and other students as you participate in the educational process. Participating in a course with an online website means that you may have access to personal information and academic work produced by other students and faculty members, such as discussion board postings, drafts of papers and other work produced in the course. Academic norms and MSU policy require that you must not reveal any information about classmates, course work content, or its authors to anyone outside the course.

## Counseling Center

It is not uncommon for capable, intelligent, and reasonable persons like the members of this class to sometimes face situations and problems that they find difficult to manage by themselves. MSU has an Office of Student Affairs and Services, which offers [Counseling & Psychiatric Services \(CAPS\)](#). The phone number is 355-8270. The Center is at 207 Student Services Building.

## Confidentiality and Mandatory Reporting of Sexual Misconduct

MSU is committed to fostering a safe and productive learning environment. Title IX and our school policy prohibit discrimination on the basis of sex, which includes sexual misconduct—including harassment, domestic and dating violence, sexual assault, and stalking. We understand that sexual violence can undermine students' academic success, and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings.

Materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including me, may not be able to maintain confidentiality when it conflicts with my responsibility to report certain issues based on external legal obligations or that relate to the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices if you share it with me:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child,
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and
- Credible threats of harm to oneself or to others.

These reports are made to ensure that you get all the support and information you need to make an informed decision on whether or not you would like to take further steps. These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual.

If you would like to talk about these events in a more confidential setting you are encouraged to make an appointment with the MSU Counseling Center (517-355-2870) or the [MSU Sexual Assault Program](#) (517-355-3551), call the 24-hour crisis line (517-372-6666), and for support services/shelter for relationship violence and stalking, [MSU Safe Place](#) (517-355-1100). All of these professionals and advocates can help a student without having to report information pertaining to sexual misconduct or relationship violence that students share to any university or law enforcement units. On the other hand, if you would like to report any sexual misconduct in a non-confidential manner, you may call the [Office for Institutional Equity](#) (OIE) at 517-353-3922 or [MSU Law enforcement \(Police\)](#) at 517-355-2221.