

## **Title**

Inquiry-Based Learning in the Classroom (formerly INST155)

## **Target Audience**

This course is intended for pre-service and in-service teachers of grades K-12.

## **Prerequisites**

To successfully participate and complete the assignments in this course, the learner must:

- Have past experience using the classroom computer.
- Have past experience working with the Internet.
- Be familiar with taking an online course or have completed the PBS “Practice Learning Online with TeacherLine” course.
- Be familiar with elementary or middle school educational content.

## **Course Description**

Inquiry-based learning is a teaching method that invites students to explore a question or problem, to make discoveries, and thoughtfully investigate those discoveries in their search for knowledge. Through a dynamic combination of text, video, interactive activities, and online discussion, learners explore the main components and discover the value of inquiry-based learning.

## **Instructor/Facilitator**

See instructor/facilitator sheet.

## **Credits**

To be determined by college or university.

## **Goals**

In this course, learners will explore the basic concepts and practices associated with inquiry-based learning in various disciplines. They will also explore how new technology can support inquiry-based learning. The course concludes by challenging learners to create an engaging inquiry-based facilitation plan. In this course, learners will be encouraged to use every possible opportunity to take what they have discovered and tailor it to their own teaching environment.

By the end of this course, learners will:

- Demonstrate understanding of the impact of an inquiry-based approach on student learning.
- Explore the effectiveness of inquiry-based lesson plans and Web projects.
- Adopt strategies to promote active student questioning and problem solving.

## **Outline of Content and Assignments**

After previewing the documents in the Course Information area, learners will proceed to

Course Content to complete the following six sessions, working through each session in order. Throughout the sessions, learners are asked to articulate their ideas in various forms: they are encouraged to reflect on their ideas and experiences in their online journal; the discussions in the discussion forum are designed to allow learners to glean information from other learners' experiences. As a final project, learners create a slide show which answers an essential question from their curriculum, incorporate it into a lesson plan, and implement it in their classroom. They also design a multimedia project for their students in which they will answer an essential question in the curriculum. Finally, they will reflect on the lesson implementation.

This course is designed to address ISTE's *Educational Technology Standards and Performance Indicators for All Teachers*. These standards define the fundamental concepts, knowledge, skills, and attitudes for applying technology in educational settings. This course specifically addresses the following ISTE NETS\*T:

### **I. Technology Operations And Concepts.**

Teachers demonstrate a sound understanding of technology operations and concepts.

Teachers:

A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students).

### **II. Planning And Designing Learning Environments And Experiences.**

Teachers plan and design effective learning environments and experiences supported by technology. Teachers:

A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.  
C. identify and locate technology resources and evaluate them for accuracy and suitability.

#### Session 1: Inquiring Minds Wand to Know

Learners will begin this session by introducing themselves to fellow learners in the discussion forum and by setting some goals. They will also jump right into the subject matter they will learn throughout this course by creating questions to guide their learning. Finally, they will learn about inquiry based teaching techniques and assess their value for the classroom.

By the end of the session, learners will be able to:

- Define your professional goals and expectations for this course in your online journal.
- Explain previous knowledge about inquiry-based learning.
- Identify three hands-on, inquiry-based learning techniques and explain why you think they would work in your classroom.
- Analyze and discuss the role of curiosity in the classroom.
- Reflect on what kinds of inquiry-based activity you would like to try in your classroom on both practical and theoretical levels.

Complete Activity

- Review an inquiry lesson plan from PBS

Read

- "Recognizing Inquiry: Comparing Three Hands-On Teaching Techniques"

Write in online journal

- Reflect on expectations for the course.
- Reflect on prior experiences in inquiry-based learning, including any specific techniques they have used.
- List 3 hands-on inquiry-based learning techniques. Which of these would work well in the

classroom? Why?

- Describe an inquiry-based activity they would like to try in the classroom. How would it work on practical and theoretical levels?

Participate in an online discussion

- Introduce themselves to other learners.
- Respond to the following: "Describe the role that students' curiosity has played in your own classroom. How do you think your classroom dynamic would be affected if students' curiosity played a larger role? How can you simulate more curiosity among your students?"

View video

- "Understanding"

## Session 2: All About Inquiry

This session will help learners understand how inquiry-based learning differs from traditional approaches to teaching. They will also begin to identify and learn about the intersection between technology and inquiry.

Learners will:

- Compare, contrast and explain the differences between traditional and inquiry-based teaching.
- Appraise the use of technologies for inquiry-based learning.
- Create a proposal for an inquiry-based lesson or unit that ties into their current curriculum.

Complete activity

- Artful Questioning interactive
- Review an inquiry lesson plan that integrates technology from PBS

Read

- "Difference Between Traditional Classrooms and Inquiry Classrooms"
- "How Does Technology Support Inquiry?"
- "Grazing the Net" (not required)
- "Using the Internet to Promote Inquiry-Based Learning" (not required)
- "Online Simulations: Tools for Inquiry-Based Science Classrooms" (not required)

Participate in an online discussion

- Respond to the following: "In your opinion, which of the elements of a traditional classroom presented (memorization, teacher-centered, etc.) should be preserved? If you were attempting to get your colleagues to answer the above question explain some ways you would guide them to use inquiry-based learning to answer the question."

View video

- "E-mail Questions and E-mail Scientists"

Write in online journal

- Reflect on what forms of technology (eg: email, search engines) can support inquiry-based learning.
- Reflect on the following: "How is the Internet similar to inquiry-based learning? In answering this question think about the following: Do you think some technology is necessary for inquiry-based activities?"
- Reflect on what technologies are available to them, and how would they integrate these technologies into their inquiry facilitation plan for their lesson or unit?

Complete assignment

- Inquiry-based lesson plan proposal: Final Project Part I - plan an inquiry based activity.

Begin to think about and organize a lesson plan for the final project.

### Session 3: Benefits and Obstacles

In this session, learners will identify and discuss the benefits and obstacles of inquiry-based learning.

By the end of this session, learners will be able to:

- Identify and discuss benefits, risks, and challenges of inquiry-based learning for students.
- Identify and discuss benefits, risks, and challenges of inquiry-based learning for teachers.
- Reflect on the facilitation strategies for the Final Project inquiry lesson plan.

View videos

- "Curiosity"
- "Listen to Kids"

Participate in an online discussion

- Debate the following: "Imagine a colleague says to you, 'In my experience the benefits [of inquiry-based learning] only apply to certain children. And I find inquiry is much more difficult for teachers than traditional approaches.'"

Read

- "Facilitating Inquiry: Investigations by First Graders"
- "Inquiry: Learning from the Past with an Eye to the Future"
- "Enhancing Inquiry Through Formative Assessment" (not required)
- "Inside the Black Box: Raising Standards Through Classroom Assessment" (not required)

Write in online journal

- Reflect on the following: "Think of two or three questions you have concerning how to facilitate content learning in your inquiry-based lesson plan or how would you overcome obstacles of time, core knowledge, assessment and standards? Now as a teacher, how would you guide yourself, as the student, using an inquiry-based approach to learn the answers? "

### Session 4: Inquiry in Action

In this session, learners will master how to identify the key principles of inquiry and evaluate facilitation plans to help them create their own.

By the end of this session, learners will be able to:

- Identify and discuss how the lessons presented in the videos make use of key principles of inquiry.
- Evaluate a variety of inquiry-based facilitation plans, and explain the key elements of successful facilitation plans.
- Design an inquiry facilitation lesson plan.

View videos

- "Park Rangers"
- "Kids' Questions"
- "Student Projects"

Complete activity

- Review an inquiry lesson plan from PBS

- Participate in an online discussion
- Based on the videos, respond to the following questions:
    - What is the role of students' curiosity in these lessons?
    - Of student ownership over the learning process?
    - How can you see activities like these being conducted in your own classrooms?

- Write in online journal
- Reflect on the following questions to complete evaluation of facilitation plan:
    - Which elements of the facilitation plan indicate that the teacher's role is one of facilitation?
    - How are habits of mind introduced and reinforced?
    - Which information-processing skills can students exercise?
    - How does the facilitator generate interest in the topic?
    - How does students' prior knowledge come into play?
    - How do students demonstrate their new knowledge and understanding?

- Read
- "How to Make Lab Activities More Open-Ended"

- Complete assignment
- Inquiry-Based Facilitation Lesson Plan: Final Project Part II – design a draft of their inquiry facilitation lesson plan.
  - Peer Review of Inquiry-Based Facilitation Lesson Plans.

### Session 5: Strategies and Systems

In this session, learners will begin to answer the questions: "Do I have the skills to bring inquiry into my classroom?" "Will I be supported by my colleagues, by my school if I bring inquiry into my classroom?" They will also implement their inquiry facilitation lesson plan in the classroom.

By the end of the session, learners will be able to:

- Identify techniques that promote inquiry-based learning and explain what types of assessment and evaluation techniques they will incorporate into their teaching.
- Identify and describe strategies for building a physical and social environment that supports inquiry-based learning.
- Select key education system elements that must be used to support inquiry.
- Explain how they can ensure their school environment is supportive of inquiry-based learning.

- Read
- "The Art of Questioning"
  - "Promoting Student Inquiry"

- Participate in an online discussion
- Respond to the following: "Of the assessment and evaluation techniques described, which will be the most useful to incorporate into your facilitation lesson plan? Explain your answer and respond to at least two other learners' posts."

- View video
- "Kids' Problems"

- Explore
- Inquiry Elements interactive

- Write in Online Journal
- Reflect on the following: "What are some of the ways you can change your classroom community and work toward a student-centered environment. How will you ensure that if you make that change your school environment will be supportive of inquiry-based learning? What steps will you take?"

- Complete assignment
- Implement newly revised lesson plan.

### Session 6: Planning Inquiry

In true inquiry fashion, in this final session learners will reflect on what they have learned, what questions they still have and what the next steps are for continuing to being inquiry in the classroom.

By the end of this session, learners will be able to:

- Analyze and evaluate the implementation of an inquiry-based lesson/unit.
- Discuss technology and inquiry-based learning and the models best suited for classroom practice.
- Assess their learning in this course by comparing prior knowledge and acquired knowledge in a journal activity.

Final Project

- Submit the final inquiry facilitation lesson plan.
- Complete 3-4 page reflection paper.

Read

- "Educational Technology: Support for Inquiry-Based Learning."

Participate in an online discussion

- The article asks "Will technology have significant effect on K-12 education?" and "How is the technology used by students and teachers?" Using what you learned from the article attempt to answer these questions and identify the models of teaching and learning you think would work best in your classroom setting.

Write in online journal

- Reflect on acquired knowledge.
- Reflect on professional goals and expectations.

### **Schedule**

It will take about 30 hours to complete this course. Each session should take approximately 4-5 hours. If you find yourself spending several hours more than this in any given session, please contact your facilitator to make sure this is necessary to complete the given assignments.

### **Requirements**

Learners are expected to:

- Complete all assignments.
- Maintain an online journal.
- Participate and actively engage in discussions with fellow learners while contributing to the social construction of knowledge.
- Be self-directed and self-motivated.
- Ask for assistance when they need it.

**Materials** (hardware, software, plug-ins)

**Technical Requirements**

- Word processor
- Internet service provider
- E-mail

**Academic Dishonesty Policy**

To be inserted by university institution only.

**Evaluation**

This course is evaluated on a letter grade basis, and may be available for graduate credit. See graduate credit details pertaining to specific graduate credit institutions.

**Last Update: November 21, 2006**