

Launch Into Learning Sciences: How Learning Works Online Course Syllabus

Course Description

Learning is a complex process that involves your brain, your personal history, your entire body and your environment. The learning sciences can help us understand how we learn, what we can do to improve learning and why some instructional strategies work better than others.

This course provides an introduction to the learning sciences for educators and edtech and instructional specialists. The primary intent of the course is to help educators use the learning sciences to make learning more effective, efficient and inclusive, both with and without educational technology. The course begins with an overview of the learning process and then delves into critical aspects of learning such as motivation, depth of processing, instructional material design, formative assessment and feedback.

This course will take about 15-20 hours to complete. Some of the questions and activities will ask you to think about how you might approach things in your own classroom because we want this course to be relevant to your own needs and context. Although not required, you are strongly encouraged to try some of the strategies with students or as you engage in your own learning process!

You'll also have access to a real-life instructor throughout this course. The instructor will provide you with feedback on assignments and additional support as you work through the content. Once you get started, the instructor will reach out to you and be your point of contact for any questions you have related to course content, activities, or logistics.

Course Structure

This course consists of six modules and two learning simulations to practice applying concepts from the modules. Each module contains interactive practice activities, discussions, reflections and assignments. At the end of the course, you'll have an opportunity to resubmit all module assignments for course completion.

Course Goals and Objectives

Course goals

- Learners will have a basic understanding of the cognitive learning process.
- Learners will be able to determine when and how to implement specific strategies grounded in the learning sciences in their own teaching practice—both with and without the use of technology.
- Learners will apply learning science principles and strategies to create instructional materials that impact the teaching and learning process in their classrooms.

Learning Objectives

After completing this course, learners will be able to

- Describe the cognitive process of learning.
- Identify factors that influence the learning process.
- Apply strategies that support student motivation to learn.
- Determine when and how to use multimedia principles to design and select effective learning materials.
- Apply formative assessment processes that effectively and efficiently facilitate progress toward learning goals.
- Determine when and how to provide feedback that promotes learning.
- Describe strategies that lead to effective learning and articulate why they work.
- Determine when and how to apply strategies that promote meaningful (deep) learning.

Participant Profile

This course is intended for educators, instructional support staff or edtech coaches who currently support students in middle and high school classrooms. This is an introductory course for people who want to learn how learning sciences can inform effective instruction and edtech selection.

Module Descriptions

MODULE 1: THE LEARNING PROCESS

In this module, we will gain insight into how learning works and how we can best support students' learning with our teaching. We focus on four basic cognitive components of the learning process: attention, encoding, storage and retrieval.

MODULE 2: MOTIVATING LEARNERS

In this module, we will investigate student motivation through theories about their self-beliefs, values, emotions, autonomy, attributions, goals and relatedness. We will discuss why motivation matters, how it can influence learning and achievement and how we can structure activities to support positive academic motivation.

MODULE 3: MEANINGFUL LEARNING

In this module, we focus on evidence-based teaching techniques and strategies that promote effective and meaningful learning and how to apply them in the classroom. You will also learn how to help students regulate their own learning through their understanding and use of effective learning techniques.

MODULE 4: DESIGNING EFFECTIVE MULTIMEDIA FOR LEARNING

In this module, we will explore the underlying principle of cognitive load theory that brings together how prior knowledge and the design of instructional material can influence learning. We then use this theory to understand how to design multimedia instructional materials using principles for effective multimedia content.

MODULE 5: FORMATIVE ASSESSMENT FOR LEARNING

In this module, you will explore the role that formative assessment plays in effective teaching and learning. You'll examine a variety of effective formative assessment strategies, including learning targets and success criteria, student goal setting, student self- and peer assessment, teacher and student strategic questioning and student discourse, techniques for checking for understanding and individual student reflection.

MODULE 6: ADVANCING LEARNERS WITH FEEDBACK

In this module, you will examine how feedback impacts learning and explore a variety of types of feedback. You'll determine when and how to provide feedback that promotes learning during instruction, and you'll practice integrating feedback episodes in a lesson.

Completion Criteria

Successful completion of this course will require approximately 15 hours of work. To receive the certificate of completion, you must

- Read and interact with content in six modules.
- Successfully complete and submit a final version of all module assignments. Success criteria are outlined in the instructions for each assignment. Each final assignment is worth 3 points for a total of 18 points. You must earn 11 points total for course completion. Module assignments that 1) demonstrate in-depth understanding of module content and concepts and 2) address all of the assignment criteria in the directions completely and accurately will receive full points.
- Participate in all required course discussion forums.

Disclaimers

This course is developed as part of the [Course of Mind initiative](#) with support from the Chan Zuckerberg Initiative and is a production of the International Society for Technology in Education (ISTE). This course contains examples and resource materials that are provided for participants' convenience and information. The inclusion of any material is not intended to endorse any views expressed or products or services offered. These materials may contain the views and recommendations of various subject matter experts as well as hypertext links and websites to information created and maintained by other public and private organizations. The opinions expressed in any of these materials do not necessarily reflect the positions or policies of ISTE.

ISTE does not control or guarantee the accuracy, relevance, timeliness or completeness of any outside information included in these materials.

NOTE: A variety of applications are highlighted throughout this course. Prior to using any of them with students, it is imperative that participants check the account requirements for each application against their school/district student data privacy policy to ensure the application complies with district policy. In addition, some applications' Terms of Service may require parental permission to be COPPA and FERPA compliant for students younger than 13 years of age.

Content in this course is subject to change at instructor's or ISTE's discretion.