Spring Term 2018
Period 10A
Tuesdays & Thursdays, 10:10 AM to 12:00 noon
X-hour: Wednesdays, 3:30 to 4:20 PM
Building/Room TBD
Professor Donna Coch
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Donna.Coch@Dartmouth.edu
203 Raven House
Office Hours: by appointment

Education must, then, be not only a transmission of culture but also a provider of alternative views of the world and a strengthener of the will to explore them.
Jerome Bruner, 1961, p. 59

“Do you mean ter tell me,” he growled at the Dursleys, “that this boy – this boy! – knows nothin’ abou’ – about ANYTHING?” Harry thought this was going a bit far. He had been to school, after all, and his marks weren’t bad. “I know some things,” he said. “I can, you know, do math and stuff.”
J.K. Rowling, 1997, p. 49

Course Description
Education, development, and learning are inextricably intertwined. In this course, we will explore how pre-Kindergarten through high school education is informed by scientific evidence across multiple domains. Topics to be explored may include the educational system in America; the research-to-practice gap and educational misconceptions; social, emotional, and motivational development in school context; memory, strategies, metacognition, and assessment as related to learning; and learning and teaching in early math, science, and reading.

Course Goals
- To not only become familiar with, but also begin to develop a deeper understanding of, a wide range of concepts related to learning, development, and teaching.
- To begin to apply interdisciplinary, empirical evidence to construct and use your own model of learning, development, and teaching.
**Required Reading**

- All of the readings for the course will be available through the Canvas site for the course.
- All of the readings listed in the syllabus are required reading for the course.
- All students are expected to read the material indicated in the Schedule and Reading List by Class below before each class and be prepared to discuss that material in class.
- By design, there are few outside-of-class assignments for this course. I have chosen the readings carefully, and I expect you to spend time reading and thinking about them. Building a knowledge base is foundational to understanding (see Course Goals); the assigned readings will help you to begin to construct such a knowledge base concerning learning, development, and teaching – to which we will add in class through lectures and activities.

**General Requirements**

- All students are expected to attend class regularly (including x-hours), on time, and each student is responsible for all material presented and discussed in every class. If you must miss a class, it is your responsibility to borrow the notes from another student, acquire any materials that were handed out, and learn if changes have been made to the syllabus.
- I recognize that some students may wish to take part in religious observances that fall during this academic term. Should you have a religious observance that conflicts with your participation in the course, please meet with me early in the term to discuss appropriate accommodations.
- All students are expected to uphold all aspects of the Academic Honor Principle (refer to [http://www.dartmouth.edu/~uja/honor](http://www.dartmouth.edu/~uja/honor)). Please make sure that you are familiar with the Honor Principle, and make sure to ask questions if you are uncertain about how it applies in this course. Any violation of the Academic Honor Principle regarding your work in this course will result in a zero on the assignment and referral to Judicial Affairs.

**Resources**

- I recognize that the academic environment at Dartmouth is challenging, that our terms are intensive, and that classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including: your undergraduate dean ([http://www.dartmouth.edu/~upperde/](http://www.dartmouth.edu/~upperde/)), Counseling and Human Development ([http://www.dartmouth.edu/~chd/](http://www.dartmouth.edu/~chd/)), and the Student Wellness Center ([http://www.dartmouth.edu/~healthed/](http://www.dartmouth.edu/~healthed/)). I encourage you to use these resources, and come speak with me, to take care of yourself throughout the term.
- Students with disabilities who may need disability-related academic adjustments and services for this course are encouraged to see me privately as early in the term as possible. Students requiring disability-related accommodations must consult the Student Accessibility Services (SAS) office (Carson Hall, Suite 125, 603.646.9900, Student.Accessibility.Services@Dartmouth.edu). Once SAS has authorized services, please share with me the SAS Services and Consent Form so that we can implement appropriate accommodations in the course. As a first step, if you have questions about whether you
qualify to receive academic adjustments and services, contact the SAS office. All inquiries and discussions will remain confidential.

- If you feel that your learning is not as efficient or effective as you would like it to be, come talk with me about approaches to this course, and consider using the resources available at the Academic Skills Center (https://students.dartmouth.edu/academic-skills/about/about-asc/services).

Assignments

1. Activities
On most days, class time will be split between lecture and activity. The goal of the activities is to provide an opportunity to discuss and engage with materials in depth. Along with lecture, activities will provide a foundation on which to begin to construct your own, evidence-based model of learning, development, and teaching.

- Activities will be conducted in small groups, to which you will be assigned pseudorandomly at the beginning of the term; you will remain in the same group throughout the term.
- Activities will be assigned to each group during class.
- Each group will post its activity response to a Canvas discussion before the end of class, so that other groups can benefit from their learning. Each group will also submit its activity response through a Canvas assignment for grading.
- Each present member of a group will receive the same grade for each activity. However, if there is agreement among the majority of a group that a member or members did not contribute meaningfully to the activity and response (or it is my judgment that such is the case), that member may receive a different grade. In general, by choosing not to participate, you affect your own learning; but for group projects, you also compromise others’ learning, as your groupmates are robbed of the opportunity to benefit from your insight and perspective in the same way that you have from theirs.
- No late assignments (posts to either a discussion or an assignment) will be accepted.
- Meaningful participation in class activities is an important component of the course. Obviously, you cannot meaningfully participate in group activities if you are not present, so there is no way to “make up” a missed activity. However, if you must miss a class, there is a one-time option to complete an alternate 3-point assignment as a replacement (this cannot be used for “extra credit” or to “make up” other missed points). Please ask me for this assignment at the next class you attend following your absence; it is available only at this time and is due 72 hours after you receive it.

2. Brief Reflections
As described above, the goals of this course are for you to (1) develop a deeper understanding of learning, development, and teaching and (2) begin to apply that knowledge. The brief reflections are designed to support these goals directly. These six assignments are due after the first day of class (i.e., material from the first day of class should not be used in reflections) and before the beginning of class on 29 May (the last day of class), but only one brief reflection
may be submitted per week, so plan ahead. Brief reflections are limited to 100 words each; choose your words carefully and write clearly and well. There are two kinds of brief reflections, and you will be handing in three of each throughout the term:

- **Aha Moments**
  As you begin to become familiar with the key concepts in this course, you will invariably experience aha moments – moments of sudden insight or discovery in which something seems to fall into place, something that has not made sense previously does begin to make sense, you recognize something about yourself that you have not thought about before, or you realize that your beliefs are incompatible with the evidence. Note that this is not just about learning something new, but rather learning something new that really changes your thinking in some way. When you experience an aha moment related to the assigned readings or lecture, write a brief reflection that notes the source and describes how your thinking has changed. Please include a word count (< 100) for each of your three Aha Moment brief reflections.

- **Using What You Know**
  Much of what we discuss in this course is applicable in everyday life, and connects to your lives as students and learners. When you find yourself using the key concepts in this course in your own life, or thinking concretely about how what you are learning will be useful in the future, write a brief reflection that notes the source of the concept and describes how you are applying or will apply it. Please include a word count (< 100) for each of your three Using What You Know brief reflections.

**3. Research Participation**
The goal of this assignment is to give you a first-person perspective on research studies. Participating in an education research study will allow you to reflect on where evidence comes from and how it is collected, by experiencing (or imagining) what it is like to provide that evidence. This assignment can be submitted any time before our last class; it is due before the beginning of class on 29 May. However, I encourage you to complete the assignment well before the end of term, especially as labs can be booked by the end of term. This assignment has two options (choose only one):

- **Option 1:** Volunteer to participate in a research study in the Department of Education.
  Details are posted to the Canvas site for the course. Available labs are listed on the site; contact the one you are interested in through the e-mail address provided. After you have completed participation in a study, submit your Research Participation Reflection to the Research Participants assignment on Canvas.

- **Option 2:** Imagine participating in a research study in the Department of Education.
  If you are uninterested in participating in a current research study in the Department of Education or unable to participate (many studies use exclusionary criteria that might make you ineligible), you may write a hypothetical study experience overview. First, find a published article authored by one of the faculty in the Department of Education that involved college student participants (the links to the lab websites on the Canvas site...
for the course will be useful). Second, complete the *Hypothetical Research Participation Reflection* posted to the Canvas site for the course. Submit your *Reflection* to the Research Participation assignment on Canvas.

Your work should be your own for this assignment. Do not collaborate with other students, consult research assistants in the labs, or talk with the primary investigators in the labs about your responses.

**Lectures**
As noted above, on most days, class time will be split between lecture and activity. I will post the PowerPoint slides that I use for each lecture to the Canvas site for the course after each unit. I understand that access to the slides supports your learning; I also understand that having the slides during lecture can encourage attention to wander and decrease active engagement. Indeed, I would strongly prefer (and research evidence supports) that you not use your laptop during lecture; how and whether you want to learn is of course your choice, but using a laptop affects not only you, but also the students around you. Given that you will have access to the slides, do not expect to have time to copy every word during class.

**Exams**
There will be three in-class exams throughout the term, and one final exam during final exam period. Each exam will cover all material (e.g., assigned readings, lecture, discussion, in-class Activities, Activity discussion posts) up to and including the class before the exam is given; each is cumulative. Exams may include multiple choice, fill-in-the-blank, and short answer questions. Multiple choice and fill-in-the-blank questions will require you to recall information; in addition, multiple choice questions may require you to justify your choices. Short answer questions will require you to use and apply information.

Exams must be taken at the scheduled times: There are no “make-up” exams. Please carefully look at your term calendar on day one and make sure that you do not have conflicts with the scheduled exam dates.

**Canvas** *(https://canvas.dartmouth.edu)*
Class resources can be found on the Canvas site for the course, including a copy of the syllabus and course reading links. You will post your Activity responses to discussions on Canvas, and submit assignments through the assignments function.

**Into the Future**
There are many opportunities to work with elementary and secondary school students – to use what you have learned in this course – while you are at Dartmouth. You can find a detailed list on the Department of Education website: 
[http://educ.dartmouth.edu/sites/educ.dartmouth.edu/files/opportunities_to_work_with_children_and_adolescents_0.pdf](http://educ.dartmouth.edu/sites/educ.dartmouth.edu/files/opportunities_to_work_with_children_and_adolescents_0.pdf).
**Course Grade**

Grades for the course are based on attendance and participation (5 points); your grades on the 11 Activities (3 points each); your grades on the six brief reflections (1 point each); your performance on the four exams (Exam One: 8 points, Exam Two: 10 points, Exam Three: 15 points, Final Exam: 20 points); and your research participation (real or imagined: 3 points). Grading is consistent with the ORC description of scholarship ratings (see [http://www.dartmouth.edu/~req/transcript/grade_descriptions.html](http://www.dartmouth.edu/~req/transcript/grade_descriptions.html)).
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<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>WHAT TO READ†</th>
<th>HAND IN*</th>
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<tr>
<td>Week One</td>
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<tr>
<td>27 March</td>
<td>Introduction</td>
<td>Syllabus, Canvas site, Diamond</td>
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<td>29 March</td>
<td>Overview of US Education</td>
<td>USDoS, Mervis, Mervis</td>
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<td>Week Two</td>
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<td>03 April</td>
<td>Overview of US Education</td>
<td>CSH, Miller, NASSP, Turner</td>
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<td>Evidence-based Education</td>
<td>Davies, Alberts, CfC, Slavin, Boser, Jarrett, Matthews, Chatterjee</td>
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<td>Week Three</td>
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<td>10 April</td>
<td>Teachers &amp; Teaching</td>
<td>Finley, Ellison, Hamre, Tomlinson, Darling-Hammond (2), Wall</td>
<td>Activity #2</td>
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<td>12 April</td>
<td>Exam One</td>
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<td>Week Four</td>
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<td>Social Processes</td>
<td>Blakemore, Stahl, Handwerk, APA, Weissberg</td>
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<td>18 April</td>
<td>[Exam One returned]</td>
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<td>19 April</td>
<td>Emotional Processes</td>
<td>Mischel, Duckworth, Lipsett, Blair, Walker</td>
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<td>24 April</td>
<td>Motivation</td>
<td>Dweck, CEP, Riley, Hulleman, Engel</td>
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<td>26 May</td>
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<td>Memory</td>
<td>Miller, Orlin, Thorne, Harvard, Paul</td>
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<td>02 May</td>
<td>[Exam Two returned]</td>
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<td>03 May</td>
<td>Metacognition</td>
<td>TEAL, Pintrich, Fadel, Halpern, Schmaltz</td>
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<td>Strategies</td>
<td>Rohrer, Karpicke, Pan, Terada, May, Buckhalt</td>
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<td>Assessment</td>
<td>Ronan, AERA, AERA, Strauss, Jochim, Darling-Hammond, Weimer, Frey</td>
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<td>15 May</td>
<td>Exam Three</td>
<td>[no readings]</td>
<td>Activity #9</td>
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<td>17 May</td>
<td>Science</td>
<td>AERA, Colburn, Nature, Klahr, Sadler, Schneps, NAP</td>
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<td>Week Nine</td>
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<td>22 May</td>
<td>Math</td>
<td>Griffin, Devlin, Willingham, Kimball</td>
<td>Activity #10</td>
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<td>23 May</td>
<td>[Exam Three returned]</td>
<td>[no readings]</td>
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<td>24 May</td>
<td>Reading</td>
<td>Hindman, Koralek, Shanahan, Stainthorp</td>
<td>Activity #11</td>
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<td>Week Ten</td>
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<td>29 May</td>
<td>Summary &amp; Reflection</td>
<td>Alberts, Stipek, APA/CPSE, Jones, Wong</td>
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<td>Final Exam</td>
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<td>02 June</td>
<td>Saturday, 3:00-6:00 PM</td>
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The Schedule is subject to change. See detailed list below. Also: Brief Reflections and Research Participation.
READING LIST BY CLASS

The assigned readings listed below should be completed before each class; lectures and activities assume that you have completed the readings. Clicking on the doi or url provided should directly link to each reading. If a hyperlink brings you to a page filled with nonsense symbols, try clicking on the address in your browser window to highlight it, then pressing the return key. You may need to copy-and-paste some links directly into your browser. If a hyperlink fails, conduct a library or Google search to find the assigned reading.

Week One

**Tuesday 27 March – Introduction to the Course**
An overview of the course, a preview of some of our topics and themes, and an opportunity to think about why we care about education. Please familiarize yourself with the syllabus and the Canvas site for the course; many of your likely questions about the course will be addressed by information included in these resources.

Syllabus
Canvas site for the course

**Thursday 29 March – Overview of the US Education System (Part 1)**
An introduction to the school system in America: students, structure, types of schools, and an international comparison; how schools are run: decentralization and local, state, and federal roles; low-income students in US schools: the income-achievement gap and early intervention; and Federal programs: ESEA, NCLB, R2T, ESEA Flexibility waivers, and ESSA.


Week Two

**Tuesday 03 April – Overview of the US Education System (Part 2)**
Continuation of our introduction to the school system in America: students, structure, types of schools, and an international comparison; how schools are run: decentralization and local, state, and federal roles; low-income students in US schools: the income-achievement gap and
early intervention; and Federal programs: ESEA, NCLB, R2T, ESEA Flexibility waivers, and ESSA.

Activity #1: NAEP


**Thursday 05 April – Evidence-based Education**

We will discuss the nature of evidence in education; scientific experiments and how we know what works; the research-to-practice gap; and misconceptions about learning, development, and education.


Tuesday 10 April – Teachers and Teaching
Teachers play multiple roles, and are responsible for both content and context. Today, we talk about design and delivery of curriculum, active and passive learning environments, the ZPD, transfer, academic language, learning communities, and expectations; we also discuss certification.

Activity #2: Becoming a Public School Teacher


Thursday 12 April
Exam One

Week Four

Tuesday 17 April – Social Processes in Learning and Teaching
Much learning occurs through social experience. We will discuss the development of theory of mind; the social context of learning in the classroom, including peer social status, stereotype threat, and collaborative or cooperative learning; and SEL approaches.

Activity #3: Evaluating SEL Curricula


**Wednesday 18 April – Exam One returned**

**Thursday 19 April – Emotional and Self-regulation Processes in Learning and Teaching**

An introduction to emotions, including academic emotions; the development, measurement, and teaching of emotional self-regulation; and the emotional context of learning, focusing on stress and toxic stress.

*Activity #4: Academic Emotions*


Week Five

Tuesday 24 April – Motivational Processes in Learning and Teaching
An introduction to intrinsic and extrinsic motivation; key constructs for supporting motivation; achievement motivation, mindsets, and goals; and curiosity.

Activity #5: Goal Setting


Thursday 26 April
Exam Two

Week Six

Tuesday 01 May – Memory Processes in Learning and Teaching
Today, we discuss the components of a model of memory in educational context, including the sensory register, attention, short-term and working memory, and long-term memory; the role of sleep in memory; and multitasking.

Activity #6: Memory in the Classroom


**Wednesday 02 May – Exam Two returned**

**Thursday 03 May – Metacognition in Learning and Teaching**
An introduction to metacognition and its components; examples of metacognitive development and illusion; teaching metacognitive strategies; and links between metacognition and critical thinking.
Activity #7: The MAI


Week Seven__________________________________________________________________________________

**Tuesday 08 May – Strategies for Strengthening Learning and Teaching**
Consideration of some simple, specific things that students and teachers can do to improve learning and teaching, involving testing, spacing, interleaving, note-taking, sleep, and feedback.


Thursday 10 May – Assessing Learning and Teaching
A discussion about how assessment is used in education and policy: the purposes of assessment, high-stakes testing and cut scores under NCLB, testing and the CCSS, changes in assessment under ESSA, and formative assessments.

Activity #8: Creating Valid Assessments


Tuesday 15 May
Exam Three

Thursday 17 May – Learning and Teaching Science
A selective introduction to some key concepts in science learning: scientific misconceptions; constructivism, assimilation, accommodation, and conceptual change; inquiry-based or discovery learning and explicit instruction; and the NGSS.

Activity #9: Next Generation Science Standards


Tuesday 22 May – Learning and Teaching Math
An overview of some key concepts in mathematical development: two systems for processing number; number sense, facts, procedures, and concepts; flexible thinking in math; the “math wars”; and providing examples and analyzing errors.

**Activity #10: Common Core State Standards for Mathematics**


**Tuesday 29 May – Summary and Reflection**
Concluding discussion: constructing a model of learning, development, and teaching; wrap-up and reflection.


Final Exam: Saturday 02 June from 3:00 to 6:00 PM