

Psychology 325 01: Educational Psychology

Winter, 2021

Wednesday or Friday 10:00 – 10:50 am, Location

Instructor: Dr. Michael B. Wolfe
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Phone: 331-2989
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Office Hours: Online by appointment (email me).

Prerequisite:

Psychology 101: Introductory Psychology

Required text:

Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it Stick: The Science of Successful Learning*. Cambridge, MA: Harvard University Press.

Journal articles and book chapters that can be obtained through Blackboard. A link to each article is embedded in the folder of the week in which it will be read. The References section at the end of the syllabus lists the articles we will read.

Technology requirements:

In order to be successful in the course, you will need a computer or other device that has a) high-speed internet b) a sound card and speakers, and c) a camera and microphone. You will need to be able to open and save Word (.docx), PowerPoint (.ppt), and PDF (.pdf) files. If you have technology questions while taking this course, please contact the helpdesk at GVSU (helpdesk@GVSU.edu or 616-331-3513). If you do not have access to these tools and need financial assistance with them, contact GVSU's Financial Aid office (<https://www.gvsu.edu/financialaid/>).

How the course will work:

This is a staggered hybrid course. Students will be divided into two groups, and each group will come to class once per week (Wednesday or Friday). You will use the Blackboard site for many other purposes in the course. Some of the uses of Blackboard include viewing uploaded lectures and videos, accessing reading material, occasional small group discussions, turning in assignments, and taking exams.

The topics will be set up as modules in Blackboard, each of which corresponds to one week. In each module, you will find one or two recorded lectures, the reading for

that week, and any other information you need for the week. You should complete the reading and study the online lectures before the day you come to class. If you read and watch the lecture before class, you will understand the class better. In fact, as part of this course, we will discuss psychological studies that show that, on average, you will understand class better if you read the book beforehand! Class periods will involve discussions and activities that relate to the online material.

Finally, no matter what the mode of instruction ends up being, keep in mind that as a GVSU student, you have access to all of the campus academic resources. Here is a list of those resources: <https://www.gvsu.edu/online/student-resources-3.htm>

Course objectives:

This course is designed to provide an introduction to the psychology of learning and how it applies to education. We will address the methods used in research on learning, and some of the important theories and principles related to learning. In addition, we will discuss how research on learning can be relevant to what teachers do in the classroom.

The following objectives are listed in the Syllabus of Record for the course. This list represents things students should be able to do by the end of the course:

1. Describe how the science of psychology can inform our understanding of teaching and learning.
2. Explain how the use of scientific research methods is relevant to educational psychology and highlight its enormous value in adjudicating conflicting positions in educational matters.
3. Summarize the implications of some current research on psychology on our understanding of how people learn.
4. Illustrate effective teaching and learning strategies that are geared towards maximizing student learning.

Some of the specific topics we will cover include memory, reading processes, strategies for studying and teaching, transfer of knowledge to new situations, teacher and student beliefs, metacognition, and student interest. Throughout the course, there will be a primary focus on using psychological research methods to study how people learn, and how educational practices may be guided by research. Another goal of the course is to make you informed consumers of psychological research so that you can effectively evaluate claims about what sorts of things will help students learn effectively.

One way that might be helpful to think about this class is to consider a common phrase people use to describe teaching. Many people say that "teaching is an art." I think what people mean by this phrase is that teachers should use their intuition, creativity, and experience to inspire and motivate students, and to get students to love

learning. All of these are noble goals. But through the course of the semester, I will try to show you that a more effective phrase may be “teaching is both an art and a science.” If teachers rely solely on intuition, creativity, and experience to make decisions about what to teach and how to teach it, they will often end up using teaching methods that are ineffective. It is also important to pay attention to the scientific study of learning and teaching. Scientific studies suggest to us that there are more and less effective ways of learning. In addition, lots of studies tell us that our own intuitions about what is effective are often wrong. In many cases, people’s intuitions about what is effective for learning are the exact opposite of what is actually effective. You can think of this class as introducing you to the scientific side of the phrase “teaching is both an art and a science.”

A single experiment rarely provides a definitive answer to a question about psychological processes. Alternative interpretations and contradictory experimental results can be common. Therefore, critical thinking about the issues we discuss will be a focus in this course.

Attendance:

The class periods will help you to better understand the material that is covered in the book and the readings. The difference in attendance policy for this semester compared to regular semesters is that if you are ill or quarantined, you do not need a note from a doctor to excuse your absence. You can just let me know that you will not be able to make it to class. Also, if you are dealing with covid or other related difficulties this semester, please feel free to reach out to me and we can try to figure something out to make it possible for you to still be successful in this course.

Face Coverings:

This paragraph is from the GVSU face coverings policy for Winter, 2021 and applies to this class: “Face coverings that cover the mouth and nose are required indoors.” Face coverings must thoroughly cover the nose, mouth and chin. For GVSU’s most up-to-date face covering policy, consult <https://www.gvsu.edu/lakerstogether/face-covering-policy-27.htm>.” There will be no exceptions to the face covering rule at any time, including entering and leaving the classroom.

Examinations:

There will be **three** exams given in this course, two during the semester and one on the day of the final. The final exam will be cumulative. The final will have more questions from the last third of the semester than the first two thirds, but it will cover material from the entire course. Each exam will cover the material that has been presented in the book, readings, lectures, videos, and discussions. All of the exams will

include multiple choice and short essay questions. The first two exams will be worth 40 points each, and the final will be worth 60 points. Many of the exam questions will be written to test your understanding of the material more than just your memory for the material. This means that when you study, you should keep track of whether you understand the material. Do not simply memorize lists of definitions.

You are expected to take each exam online during the time window indicated in the syllabus. If you cannot take the exam during the scheduled time for any reason, you must notify the instructor within 24 hours of the exam. Make-up exams will be given as soon as possible after the exam, and the format of the exam is left to the discretion of the instructor. Exams will be administered on the Blackboard site for this class.

Reflections on material (10 points each, 90 points total):

Throughout the semester, you will write short reflection papers in which you relate the course material to the goals of the class and to education more broadly. The goal of the reflections is to get you to think clearly about how the course material may be relevant to education outside the confines of this class. For each reflection you should do two things: 1) Describe your reaction or thoughts about the material in terms of its relevance to education. Is it surprising? How could it be used? Do you have any personal experiences relevant to the information? 2) State clearly which experiment or information specifically relates to your first point.

In order to get full credit, you need to clearly describe the information you are referring to so I can tell that you understood it. For example, you might say "this point is made by the consistent/inconsistent outline study." In this case, I don't know if you know what happened in that study or what it meant. You should describe what happened (briefly) in the study and how it relates to your reflection. You are free to write about whichever aspect of the material you want. The point is that you should think deeply about the material and how it can apply to education.

Each reflection is worth ten points. **The reflections for each week will be due on Friday at 11:59 pm of that week.** The syllabus indicates which weeks they are due. Generally we will not have reflections in weeks in which we also have an exam. The lowest reflection grade will be dropped.

Short assignments (15 points each - one page maximum for each assignment). All short assignments need to be uploaded to the Assignments page in Blackboard by class time on the day they are due.

#1 (due 2/1): We will discuss the paper by Hirsh (2002) and some research that is relevant to the points he raises about educational research. Your assignment is to write two "deep questions" about this paper so that we can have a better discussion of it in class. A deep question (compared to a surface question) is one that asks about an

important or fundamental aspect of the article. Your questions should be substantive enough that they demonstrate that you read the article carefully and have thought about the implications of it. They can be actual questions about something you did not understand, or they can be comments. Either way, you need to elaborate on your question or comment in enough detail that it is clear to the reader that you read and thought about the paper. You can also think of these questions as ones that you would be willing to read aloud to the class for the purpose of stimulating discussion.

Each question should be one paragraph.

#2 (due 4/19). In the last week of class you will turn in a brief written assessment of the two papers that are assigned for that week. The writing assignment will also serve as the basis for a class discussion that we will have during that week.

For this assignment, you should address a particular issue within the learning styles literature as it relates to the two papers that are assigned for the last week of class (Massa and Mayer, 2006; Zapalska & Dabb, 2002). The *learning styles hypothesis* is a phrase that refers to the basic claim, often made in the learning styles literature, that students will learn best if they are given information in their preferred modality. Multiple authors (eg. Massa and Mayer, 2006; Pashler et. al., 2010) have argued that there is a particular pattern of evidence that should be found in order to establish support for the learning styles hypothesis. A study should be able to identify at least two different groups of learners (visual and verbal, for example.) Then students should be assigned to all learn the same content, but the content should be presented in one modality or the other (visually or verbally.) Then all students take the same test over the content. Support for the hypothesis would be found if the visual learners score higher when studying content in the visual modality, and the verbal learners score higher when studying content in the verbal modality. Massa and Mayer (2006) refer to this pattern as an aptitude by treatment interaction, or the ATI hypothesis. Other patterns of results, such as everyone scoring higher with the visual modality, would not provide support for the hypothesis. Experiments that do not present information in multiple modalities and test learning of it would be unable to provide support for this hypothesis because they wouldn't have the right experimental setup.

In this assignment, you should write a brief (one paragraph per article) statement about the extent to which each of the articles provides (or does not provide) evidence that supports the learning styles hypothesis. You do not need to write a summary of the article. Just get straight to the question of whether the article provides or does not provide evidence that would count as supporting the hypothesis, and explain your response.

GVSU course policies:

This course is subject to the GVSU policies listed at <http://www.gvsu.edu/coursepolicies>

At this website you can find all policies related to such topics as academic integrity, disabilities, inclusion, and discrimination. Please note that you are responsible for knowing and following the policies that are listed here. It is a good idea to read through them to familiarize yourself with them.

Academic Integrity (statement from the Faculty Teaching and Learning Center):

Truth and honesty: The principles of truth and honesty are recognized as fundamental to a community of teachers and scholars. The university expects that both faculty members and students will honor these principles and in so doing protect the validity of university grades. This means that all academic work will be done by the student to whom it is assigned without unauthorized aid of any kind. Instructors, for their part, will exercise care in the planning and supervision of academic work, so that honest effort will be positively encouraged. Compliance shall include compliance with the following specific rules:

1. No student shall knowingly procure, provide, or accept any materials which contain questions or answers to any examination or assignment.
2. No student shall complete, in part or in total, any examination or assignment for another person.
3. No student shall knowingly plagiarize or copy the work of another person and submit it as his or her own.
4. No student shall submit work that has been previously graded or is being submitted concurrently to more than one course without authorization from the instructor(s) of the class(es) to which the student wishes to submit it.

Plagiarism:

You must write all assignments in your own words. If you copy phrases or sentences from any source without quoting them, that is plagiarism. If any work you turn in is plagiarized, you will earn a 0 for the assignment, and may fail the course. There is a link posted on Blackboard for a website that has a lot of useful information about plagiarism. I encourage you to look at it or talk to me if you have any questions about plagiarism.

Grading:

Your final grade for the course will be a combination of the scores on each of the exams (140 points total), 90 points for the reflections, and 30 points for the two short assignments. All grades will be represented as percentages. Letter grades will be assigned based on the following scale:

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|-----------|----|
| 93 – 100% | A |
| 90 – 92% | A- |
| 87 – 89% | B+ |
| 83 – 86% | B |
| 80 – 82% | B- |
| 77 – 79% | C+ |
| 73 – 76% | C |
| 70 – 72% | C- |
| 67 – 69% | D+ |
| 60 – 66% | D |
| 0 – 59% | F |

This scale may be adjusted to make grades higher at the discretion of the instructor (exams may be curved), but it will not be adjusted to make grades lower.

Tentative Schedule of Topics

| Week | Topic | Reading | Due this week |
|-----------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------|
| 1: 1/19 - 1/22 | Introduction and Research Methods | Openstax Psychology textbook, Chapter 2 | Reflection 1 |
| 2: 1/25 – 1/29 | Introduction and Research Methods | Openstax Psychology textbook, Chapter 2; MIS Chapter 1 | Reflection 2 |
| 3: 2/1 – 2/5 | Interpreting Educational Research / Studying Big Educational Questions Short assignment #1 due 2/1 | Hirsch, 2002 | Short assignment #1 (Monday) |
| 4: 2/8 - 2/12 | Basic Components of Memory | Openstax Psychology textbook, Chapter 8 | Reflection 3 |
| 5: 2/15 – 2/19 | Exam 1: 2/15 Testing | MIS Chapter 2 | Exam 1 (Monday) |
| 6: 2/22 – 2/26 | Knowledge Organization and Learning | Kintsch, 1994 | Reflection 4 |
| 7: 3/1 – 3-5 | Learning and Prior Knowledge | Wolfe & Mienko, 2007; O’Reilly, Wang, & Sabatini, 2019 | Reflection 5 |
| 8: 3/8 – 3/12 | Variability During Acquisition No Class Wednesday, 3/10 | MIS Chapter 3; Rohrer, Dedrick, & Stershic, 2015 | Reflection 6 |
| 9: 3/15 – 3/19 | Spacing During Acquisition | MIS Chapter 4; Rohrer & Taylor, 2006 | Reflection 7 |
| 10: 3/22 - 26 | Exam 2: 3/22 Metacognition | MIS Chapter 5; Thiede & de Bruin, 2018 | Exam 2 (Monday) |
| 11: 3/29 – 4/2 | Beliefs and Misconceptions | Sinatra & Broughton, 2011 | Reflection 8 |
| 12: 4/5 – 4/9 4/9 | Interest and Learning 5:00 PM. – Drop deadline with grade “W” | Kaminski & Sloutsky, 2013 | Reflection 9 |
| 13: 4/12 – 4/16 | Research Methods Revisited | Watch video (link on BB) | Reflection 10 |
| 14: 4/19 – 4/23 | Research Methods Revisited Short assignment #2 due 4/19 | Zapalska & Dabb, 2002; Massa & Mayer, 2006 | Short assignment #2 (Monday) |
| Remote final exam | Monday 4/26 at 10:00 to 11:50 | | |

Note: “MIS” refers to Make it Stick: The Science of Successful Learning

References

Hirsch, E. D. J. (2002). Classroom research and cargo cults. *Policy Review*, 115, 51-69.

Kaminski, J. A., & Sloutsky, V. M. (2013). Extraneous perceptual information interferes with children's acquisition of mathematical knowledge. *Journal of Educational Psychology*, 105, 351-363.

Kintsch, W. (1994). Text comprehension, memory, and learning. *American Psychologist*, 49, 294-303.

Massa, L. J., & Mayer, R. E. (2006). Testing the ATI hypothesis: Should multimedia instruction accommodate verbalizer-visualizer cognitive style? *Learning and Individual Differences*, 16, 321-335.

Openstax Psychology (textbook): <https://openstax.org/books/psychology/pages/2-introduction>

Note: Chapters 2 (research methods) and 8 (memory) can both be accessed through this link. Go to the Table of Contents to find Chapter 8.

O'Reilly, T., Wang, Z., & Sabatini, J. (2019). How much knowledge is too little? When a lack of knowledge becomes a barrier to comprehension. *Psychological Science*, 30(9), 1344-1351. <https://doi.org/http://dx.doi.org/10.1177/0956797619862276>

Rohrer, D. Dedrick, R. F., & Stershic, S. (2015). Interleaved practice improves mathematics learning. *Journal of Educational Psychology*, 107, 900-908.

- Rohrer, D., & Taylor, K. (2006). The Effects of Overlearning and Distributed Practise on the Retention of Mathematics Knowledge. *Applied Cognitive Psychology, 20(9)*, 1209-1224. <https://doi.org/http://dx.doi.org/10.1002/acp.1266>
- Sinatra, G. M., & Broughton, S. H. (2011). Bridging reading comprehension and conceptual change in science education: The promise of refutation text. *Reading Research Quarterly, 46(4)*, 374-393.
- Thiede, K. W., & de Bruin, A. B. H. (2018). Self-regulated learning in reading. *Handbook of Self-regulated Learning and Performance*. (pp. 124-137): Routledge / Taylor and Francis Group, New York, NY.
- Wolfe, M. B. W., & Mienko, J. A. (2007). Learning and memory of factual content from narrative and expository text. *British Journal of Educational Psychology, 77*, 541-564.
- Zapalska, A. M., & Dabb, H. (2002). Learning styles. *Journal of Teaching in International Business, 13*, 77-97.