

## Psychology 321-01/02 Cognitive Psychology – Fall 2021

**Class Meetings:**            **Sect 01:** TTh 09:30 a.m. 10:45 a.m. in Science Center 320  
   **Sect 02:** TTh 11:00 a.m. 12:15 p.m. in Science Center 320

**Instructor:**            Dr. Robert Crutcher, SJ 309  
   Email: [rcrutcher1@udayton.edu](mailto:rcrutcher1@udayton.edu)  
   Phone: UD: 937-229-1346; Cell/Text: 937-471-0686  
   Office Hours: W 1:30 - 3:30 p.m., drop-in, by appointment, or via Zoom

**Office Hours:** My official hours are on Wednesdays, from 1:30 3:30 p.m. However, I'm happy to meet with you whenever I'm in my office if I'm not busy with someone or something else. Feel free just to drop by to talk. You can always make an appointment if you want to be sure to meet with me: please email with all the days and times that you're free and I'll find a time for us to meet. I love talking with students. I encourage you to seek me out to talk about the course or about anything on your mind.

**Readings & Supplies:** The required textbook is Cognition (10th Ed., 2019; ISBN-13: 978-1119491712) by Margaret W. Matlin & Thomas Farmer. Journal articles and handouts read in conjunction with the assignments that we will do.

**Grading:** Grades will be based on quizzes, exams, a final, and participation. The **approximate** distribution of points are as follows. It's always possible I will have to modify assignments and/or point values. Check your UD email and Isidore Announcements daily.

Quizzes (highest 6 out of 8)	72	points
Exams (3)	150	points
Final Exam (Cumulative)	100	points
Participation	50	points
Written Assignments (?)	?	points
Total (approximately)	372	points

**Quizzes** will occur frequently to help you learn the material. Your quiz score will be based on your 6 highest quiz scores: I will drop your lowest 2 scores. If you don't or can't take a quiz for any reason, it will count as one of your 2 dropped scores. Quizzes will be online on Isidore, on Fridays. However, some quizzes may be in class. Be sure you are in class every day. If you miss a class and there's a quiz that day, it will count as one of your dropped quizzes. There are no make-up quizzes. Check your email daily for changes to the schedule.

**Exams:** There will be **3 semester exams** worth 50 points each and a **final exam** worth 100 points that will be **cumulative**. Both the semester exams and final exam may consist of multiple choice, fill-in, short answer, and/or essay questions. Exams will be in-class (or possibly online--TBD). **Make-up exams** are only given if you have a verifiable, documented illness or emergency and **only if you contact me before the day of the exam**. Make-up exams will be in a different format (e.g. all essay exam).

**Participation, Attendance, & Email:** Please note the points for **class participation**. Choosing to **actively** learn and master this material is essential to doing well in this course. I therefore give participation points as part of your grade. Many things can potentially contribute to your participation grade. Participation means that you're in class, on time, and actively participating in class. Coming to see me outside of class to discuss the material, making a genuine effort to relate what we're doing in class to your everyday life (e.g. finding an article in a magazine that relates to a topic we've discussed and sharing it with me; applying the techniques we discuss for memory improvement to your own memory, etc.) are all evidence of participation and involvement. Missing classes or not paying attention in class will work against earning participation points. Excessive absences, for whatever reason, will significantly decrease your grade. **If you have more than 7 absences, for any reason, you won't pass the course. Remember, you are expected to check your EMAIL regularly (daily at least):** that's how changes in the schedule will be communicated to everyone.

**Written Assignments:** If there are any written assignments, the **assignments are due on the due date**, at the beginning of class. My policy is no late work. If I do accept your work late, it will be marked down **significantly**. You are to write all your assignments on your own and in your own words. Evidence of plagiarism: for example, using material from sources without

proper citations, including web pages of any kind or copying from other students will result in the severest of penalties as required by university regulations (additional info under **Classroom Protocol**, below).

**Classroom Protocol:** You are expected to arrive to class on time and to show respect for other students and the instructor. Once class begins, **please remain in class**. *Use of cell phones) or computers is prohibited during class. Laptops may only be used by special agreement between the instructor and only for the purpose of note taking.*

Any student caught cheating on an exam or plagiarizing written work will receive a grade of “F” for the course. See the Academic Honor Code published in the bulletin for a full description of standards of conduct and academic honesty: <http://catalog.udayton.edu/undergraduate/generalinformation/academicinformation/theacademiconorcode/>. During quizzes and/or exams, no cellphones or other electronic devices may be used or present on your desk and will be grounds for failing the quiz or exam. Once an exam or quiz begins, students must remain in the classroom.

**Special Needs:**

Any student with a disability or other special need that may require special accommodations for this course should make this known to the instructor as soon as possible--by the end of the 2nd week of the semester at the latest. Students requiring special accommodations should also register with the Office of Learning Resources (phone: 229-2066).

**Technology Requirements:**

This course requires the use of a computer that [complies with the hardware specifications](#) that were communicated to you by your college. It also requires the use of the latest version of the Microsoft Office software, which is available for you to download at no additional cost at [UD's Software page](#). It is your responsibility to ensure you have a working computer with the required software installed and fully functional.

- All email messages will be sent to you via your UD Gmail, so you should check that account every day.
- A secure and reliable internet connection is necessary to take this course.
- Please contact the UDiT Service Center at (937) 229-3888 or [itservicecenter@udayton.edu](mailto:itservicecenter@udayton.edu) if you have any technical problems with Zoom, Porches, Isidore, Gmail, Microsoft Office, or your computer.
- If you do run into technical problems, I'm happy to try to help if I can, but most likely you'll probably need to contact the UDiT Service Center for help.
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**Course Description:** For much of the course, I will present material in class on cognitive psychology. Although most of this material will be similar to what is in the text I will freely add to, subtract from, and/or change what is in the book. There are places in the book where I think the information is too little or too much or simply not the right material. This is not to slight the book. I chose this book because I think it does a good job of presenting complex subject matter in understandable terms. However, research continually revises what we know and some findings described in the book have been superseded or revised by more recent findings. It is also the case that some of the material presented in the book will be presented differently than how I present it in class. This is normal for psychological research--many issues are far from settled. When there are differences between what is presented in the book and what I present in class, I will ask you (for the purposes of this course) to go with the version that I've given you in class. This does not occur often but it does occur occasionally and as I noted, it's normal for the state of the science of psychology

Having said that, I should underline that it is critically important that you get the material I go over in class or you will not master the material for this course. The exams will cover what I talk about in class as well as what is in the readings I give you, so you cannot depend on only one or the other. I will not be able to cover everything in every chapter. However, unless I specifically rule out something, everything in the book and readings, as well as the lecture material and experiments (i.e. class demonstrations) may appear on the exams.

Besides the lecture material, you will observe and participate in numerous demonstrations of cognitive phenomena. You will also participate in experiments that we'll conduct in class & may have the opportunity to gather data outside of class as part of homework/lab assignments. In short, there will be a variety of ways in which the material will be presented to you.

**Introduction & Background to Cognitive Psychology:** Cognitive psychology is the study of human thinking and memory processes. In many ways, it is the oldest part of psychology, going all the way back to Aristotle and Plato. Although its roots are old, the field as we know it today is relatively new--about 60 to 70 years old depending on whose account you read. It is concerned with such topics as how we learn and remember information, how we comprehend and use language (oral and written), how we solve problems (why, for example, are algebra word problems so challenging for most students to learn how to solve?), and how we acquire and use new concepts. For example, how are children able to master the complex skill of speaking a language in just a few years with almost no instructions (by their 4th year kids are fluent in their language), and *yet* it takes us many years to master the skill of reading and some *never* learn to read very well?

I think cognitive psychology is a fascinating area of psychology and look forward to teaching you what I know about it this semester. You will discover that cognitive psychology is somewhat different from other areas of psychology that you may have studied. The level of description that cognitive psychology is concerned with is different than what you may be used to. The cognitive level tries to understand the mind at an abstract functional level, which is not the same as the neural level and is not the same level of description as our everyday intuitions about mental processing, although some cognitive structures and processes will correspond to things we intuit. In the end, we *infer* cognitive structures and processes from behavior in careful and cleverly designed experiments and studies. For example, we all have a subjective sense of internal mental imagery that we experience in our minds. If you try, you can probably picture the rooms in your apartment or house while you are sitting in a classroom or somewhere else. That's *your* subjective mental experience of imagery. However, a cognitive psychologist is interested in understanding the nature of the actual internal cognitive representation which may be *different* from what we are *consciously aware* of. How is a mental imagery representation different from what occurs when you are actually at home viewing these rooms? What things are characteristic of mental images for everyone? Can people rotate an image of a specific object, for example, and mentally 'see' the changes in the appearance of the object. The corresponding neural level description would try to identify what brain areas and processes underlie those cognitive structures and processes that give rise to our experience of imagery.

Consider another example: short-term memory vs long-term memory. Most of us have an intuitive idea of what short term and long-term memory are: short term memories are relatively brief and can be easily lost; long term memories are relatively permanent and not easily lost. However, cognitive psychologists who study memory are interested in understanding the *structural* and *functional* characteristics of short term and long-term memory. For example, are these two types of memory actually two separate functional *systems* or are they two different *aspects* of a single memory system. Is information represented differently in the two systems or is long term memory just a stronger version of the information in short term memory? This is the sort of issue that cognitive psychologists have investigated with great energy and commitment. Most importantly, the functional structures and processes identified by cognitive psychologists have proven essential in identifying the brain structures and processes that underlie mind. In fact, cognitive psychology and behavioral neuroscience have merged into a new discipline called *cognitive neuroscience*.

Cognitive psychology is committed to an empirical, scientific approach to studying human cognition. Much of the practice of cognitive psychology involves the following: We first try to come up with a description of how an underlying cognitive process works (e.g. how new memories are encoded). Such descriptions come from a variety of places including earlier cognitive theories, theories in other areas of psychology or in other fields (e.g. computer science, communications theory, sociology, etc.) or whatever. We then generate hypotheses or predictions that should follow if the description of the underlying cognitive process is on the right track. Finally, we conduct experiments to test our predictions and based on the outcome of these experiments we revise our theory. It's similar to what young children do with such passion during those early, exciting years of initial growth and exploration! It is important to understand, however, that experiments are not the only way to learn about mental process. Simulation modeling and rational analysis are also powerful approaches that are employed by many cognitive scientists. We will also discuss some of these approaches in trying to better understand the 'revolution' that has occurred in the study of mind.

I hope that you will be able to take some of what you learn in this course and apply it to your own life. Many of the topics we will discuss concern cognitive processes that influence every moment of our waking lives. I encourage you to look for examples in your own day-to-day activities of how the ideas in this course are realized or can be applied. Some of what we will cover can make a difference in how well you learn new material or perform on formal tests such as the GRE. I will try to highlight some of this in our discussion of the material, but it will be even more valuable to you if you do it yourself as we cover the various topics.

**Why study cognitive psychology?** There are many reasons to study cognitive psychology besides that it is fascinating. cognitive psychology is one of the most important and influential areas of modern psychology. It may not be your specific area of interest, but it will help you master your area because many of its techniques, methodologies, and theories have been employed in every area of psychology: behavioral neuroscience, social psychology, human factors, and clinical psychology,

just to name a few. In addition, cognitive psychology has many applications to everyday life, such as: improving learning and memory (e.g. aiding young children with reading deficits); helping design complex systems and machines (e.g. computer software and interfaces, car dashboards, jet cockpits, and voice answering systems just to name a few); finding ways to improve decision making (e.g. juries); aiding occupational therapists in treating individuals with brain and behavioral deficits, as well as many other applications. Finally, if you plan to go on to a Ph.D. level graduate program in psychology, you will find when you take the Psychology Test of the Graduate Record Exam that there are many cognitive questions on the exam.

**Course Web Site.** I've created an entire website for this course located here: [www.rcrutter.on-rev.com/psy321n](http://www.rcrutter.on-rev.com/psy321n). Type or copy/paste this address into a web browser or go there directly via this [Psy\\_321 link](#). All of the materials for the course are located there, including, handouts, slides, and links to videos, demonstrations, etc. There is also an **Isidore** site for the course where you can check on your points and where you'll take the quizzes.

**Personal Note.** I sincerely hope that you enjoy this course and that you learn as much as possible. I am eager to help in any way that I can. Please feel free to contact me by email, phone or, even via Zoom, to discuss any aspect of the course or of your undergraduate life here at the University of Dayton, to share your joys, as well as your frustrations (which I hope are as few as possible) about the course or anything else.

**Schedule.** The schedule of topics, quizzes, exams, and assignment dates is **TENTATIVE**. That means that the exam and quiz dates as well as the topics may change—though I will try my very best to keep to this schedule. It is your responsibility to check your email and the Isidore announcements daily that so that you keep track of any changes.

### Tentative Schedule: Cognitive Psychology, F2021:

Week	Date	Topic	Matlin (10 <sup>th</sup> ed.) Reading
01	08-23-21	Introduction & Historical Background to the Cognitive Revolution	Chapter 01
		<b>Quiz 0 (Friday, 08-27-21) - Practice Quiz</b>	
02	08-29-21	Historical Background & the Cognitive Revolution	
		<b>Quiz 1 - (Friday, 09-03-21)</b>	
03	09-05-21	Perceptual Processes; Pattern Recognition; Bottom-up vs Top-down Processing...	Chapter 02
		<b>Quiz 2 - (Friday, 09-10-21)</b>	
04	09-12-21	Attention: Divided Attention; Selective Attention; Word Superiority Effect...	Chapter 03
		<b>Quiz 3 - (Friday, 09-17-21)</b>	
05	09-19-21	The Memory System, Short-Term, & Working Memory	Chapter 04
		<b>Exam 1 (Tuesday, 09-21-21) over Chapters 1-3.</b>	
06	09-26-21	The Memory System, Short-Term, & Working Memory	Chapter 04
		<b>Quiz 4 - (Friday, 10-01-21)</b>	
07	10-03-21	Long-Term Memory: Encoding, Retrieval, and Autobiographical Memory	Chapter 05
		<b>Midterm Break - No Thursday Class (10-07-21)</b>	
08	10-10-21	Long-Term Memory (continued)	Chapter 05
		Improving Memory & Metacognition	Chapter 06
		<b>Quiz 5 - (Friday, 10-15-21)</b>	
09	10-17-21	Improving Memory & Metacognition - (Continued)	Chapter 06
		<b>Quiz 6 - (Friday, 10-22-21)</b>	
10	10-24-21	Semantic Memory, Schemas, & Scripts	Chapter 08
		<b>Exam 2 (Tuesday, 10-26-21) over Chapters 4-6</b>	
11	10-31-21	Semantic Memory, Schemas, & Scripts, (continued)	Chapter 08
		<b>Quiz 7 - (Friday, 11-05-21)</b>	
12	11-07-21	Nature of Language & Language Comprehension	Chpt 09; & Chpt 02 (p.53-55)
		<b>Quiz 8 - (Friday, 11-12-21)</b>	
13	11-14-21	Language Production & Bilingualism	Chapter 10; & Ch 03 (p. 39-43)
14	11-21-21	<b>Exam 3 (Tuesday, 11-23-21) over Chapters 8-10</b>	
		<b>Thanksgiving Recess - No Class on Thursday (11- 25-21)</b>	
15	11-28-21	Problem Solving	Chapter 11
16	12-05-21	Problem Solving (Continued)	Chapter 11
17	Final Exams	<b>Final - Sect 01 (09:30 am Class) - Thurs, Dec 16 (12:20 to 2:10 p.m.) **</b>	Comprehensive (Chapters 1-11)
		<b>Final - Sect 02 (11:00 am Class) - Wed., Dec 15 (10:10 am to 12:00 p.m.) **</b>	Comprehensive (Chapters 1-11)

\*\*You must take your final exam at your assigned time.