



# Cognition

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PSYC 2040

W1: Getting Started



# welcome!



**Prof. Abhilasha Kumar**  
(she/her)

- instructor



**Jennifer Ferry**(she/her)

- learning assistant

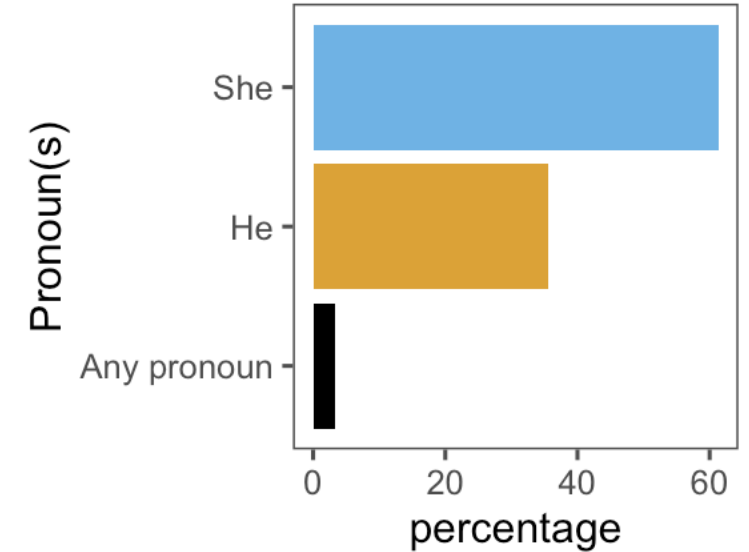
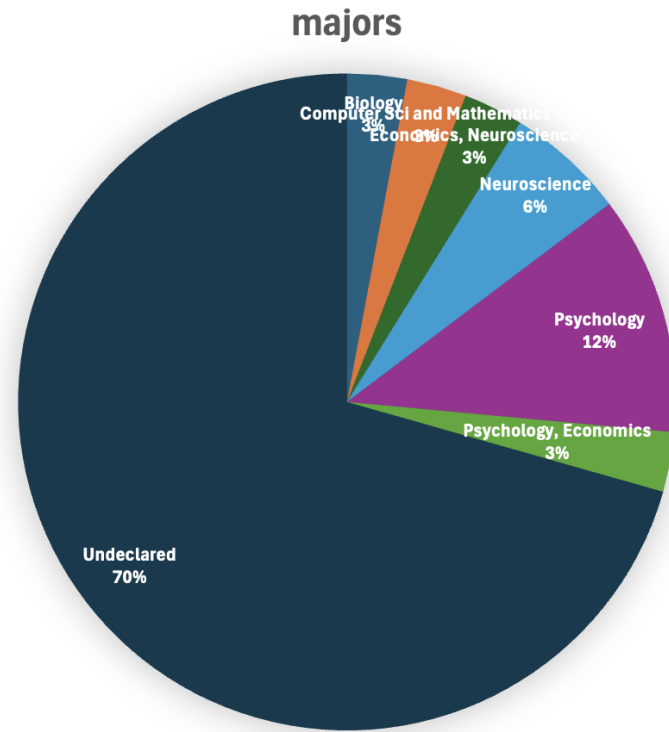
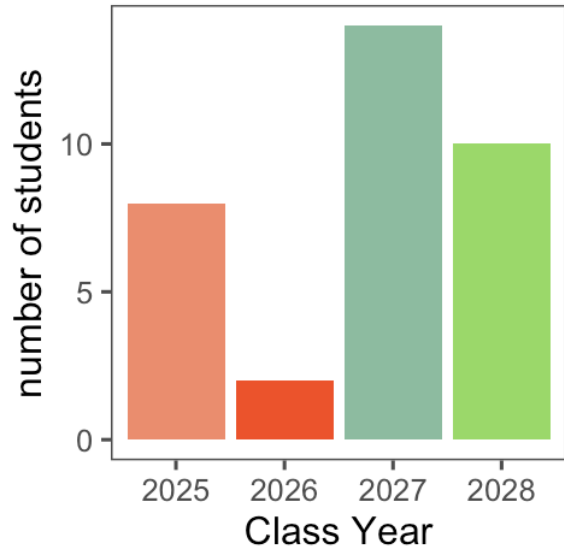


# agenda for today

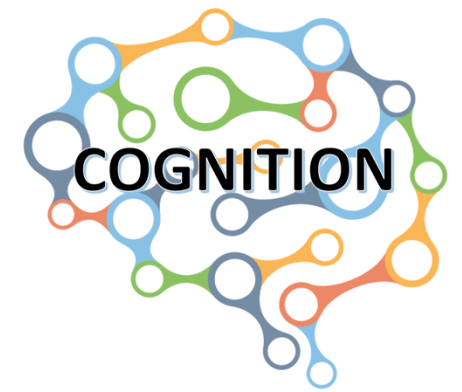


- meet & greet
- course walkthrough
- effective study strategies

# your class



# where does the course live?



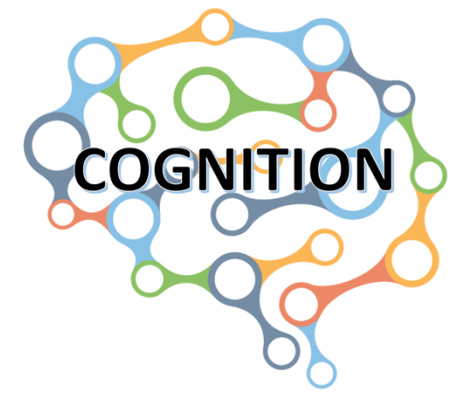
- course website:
  - <https://teaching-cognition.github.io/cognition/>
  - syllabus, (most) readings, course schedule, and assignment details
  - will be updated regularly
- canvas
  - announcements
  - quizzes + assignment submission
  - grades
  - discussions

# what is this course about?

A word cloud centered around the words 'brain' and 'thinking'. The words are arranged in a roughly circular pattern. 'brain' and 'thinking' are the largest words, colored in a dark purple. Other words include 'reasoning', 'process', 'processing', 'comprehend', 'memory', and 'thought', all in smaller sizes and various colors like orange, yellow, and grey.

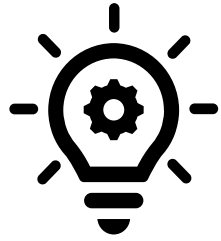
reasoning  
process  
brain  
processing  
comprehend  
memory  
thinking  
thought

# what is this course about?



- introducing you to the **scientific study of human cognition**
  - how people acquire, represent, and use knowledge to guide their everyday functioning
- **learning goals**
  - **understand** the fundamental questions & prominent methodologies in the study of cognition
  - **connect** theoretical ideas about cognition to specific evidence across different sub-domains and real-world applications
  - **reflect** on the sociocultural issues surrounding the study of cognition

# course outline

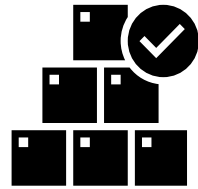


understand

lectures

quizzes

exams

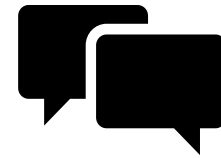


connect

activities

class participation

project work



reflect

lectures

extra credit

project work



# learning, thinking, acting

learning & thinking



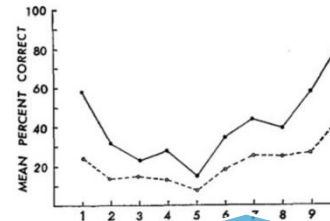
What is Cognition



Building Blocks



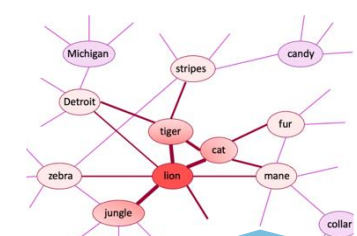
Cognitive Limitations



Learning and association



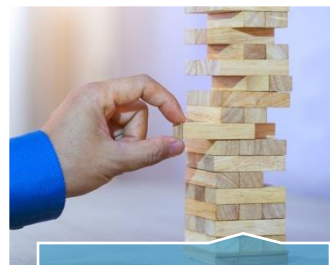
Categorization



Language



Problem Solving



Decision Making



Social Cognition



Culture



Intelligence

thinking and acting

# course components

- weekly quizzes
- midterm and final exam
- project work (groups)
- class participation
  - pre-class activities
  - practice exams
- extra credit opportunities
  - practice questions
  - memes
  - surveys
  - in-class participation

## Points

Component	Total	Learning goal
<a href="#">Weekly quizzes</a>	25	Understand, Connect, Reflect
<a href="#">Midterm exam</a>	20	Understand, Connect
<a href="#">Final exam</a>	30	Understand, Connect
<a href="#">Project work</a>	15	Connect, Reflect
<a href="#">Class participation</a>	10	Connect, Reflect
<a href="#">Extra credit</a>	5	Reflect
Total	105	

# general class format

- prep(are)
  - complete activities
- try
  - lectures
  - in-class activities
  - exit tickets
- apply
  - weekly quiz
  - project work
  - extra credit opportunities



# why a final project?

- analysis of many years of research shows that **project-based learning** is **beneficial** to student outcomes and achievement
- I want to see your **creativity** and I want you to **enjoy** this class!

Revisiting the effects of project-based learning on students' academic achievement: A meta-analysis investigating moderators

Cheng-Huan Chen <sup>a</sup> ✉, Yong-Cih Yang <sup>b</sup> ✉

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<https://doi.org/10.1016/j.edurev.2018.11.001>

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## Highlights

- A 20-year meta-analysis of journal articles on project-based learning is presented.
- Results showed a medium-to-large mean effect size (0.71) for student achievement.
- Effects were stronger for social science subjects than for science subjects.
- Effects were larger in studies involving Western students than East Asian ones.
- Educational stage and group size were not identified as significant moderators.



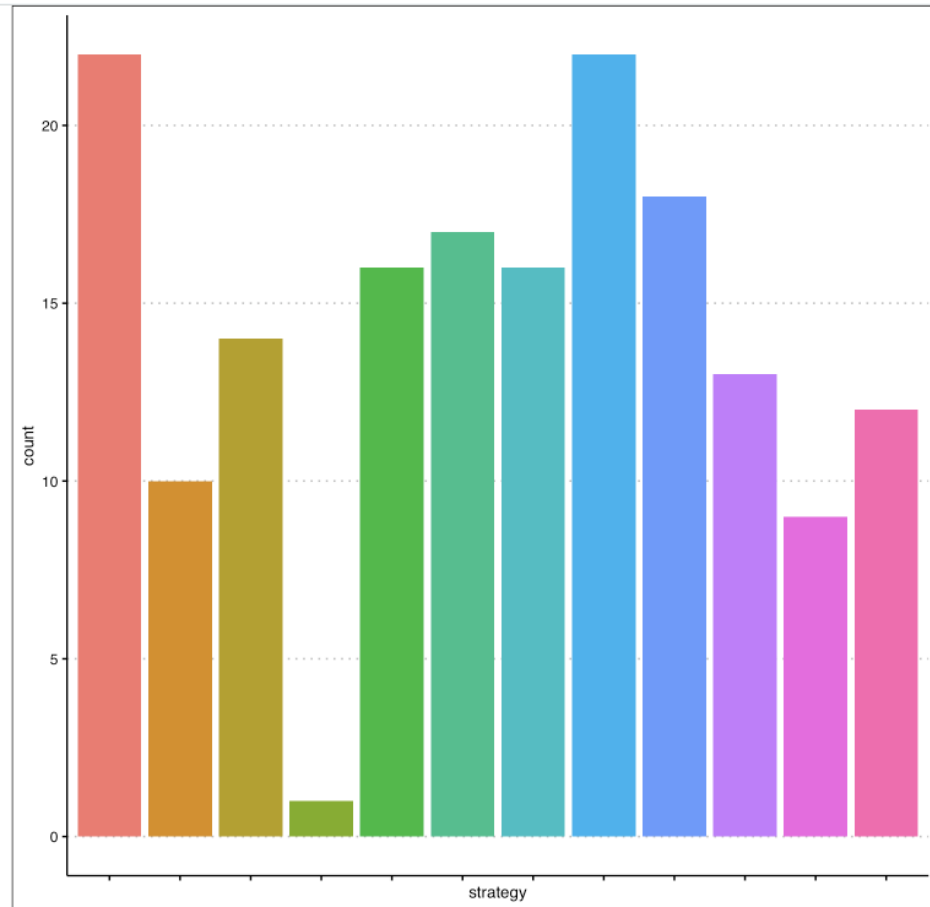
# **course website walkthrough**

# class activity: **how** do you study?

- go to W1 Activity 1 on the course website (under “[Try](#)”)
- complete and come back



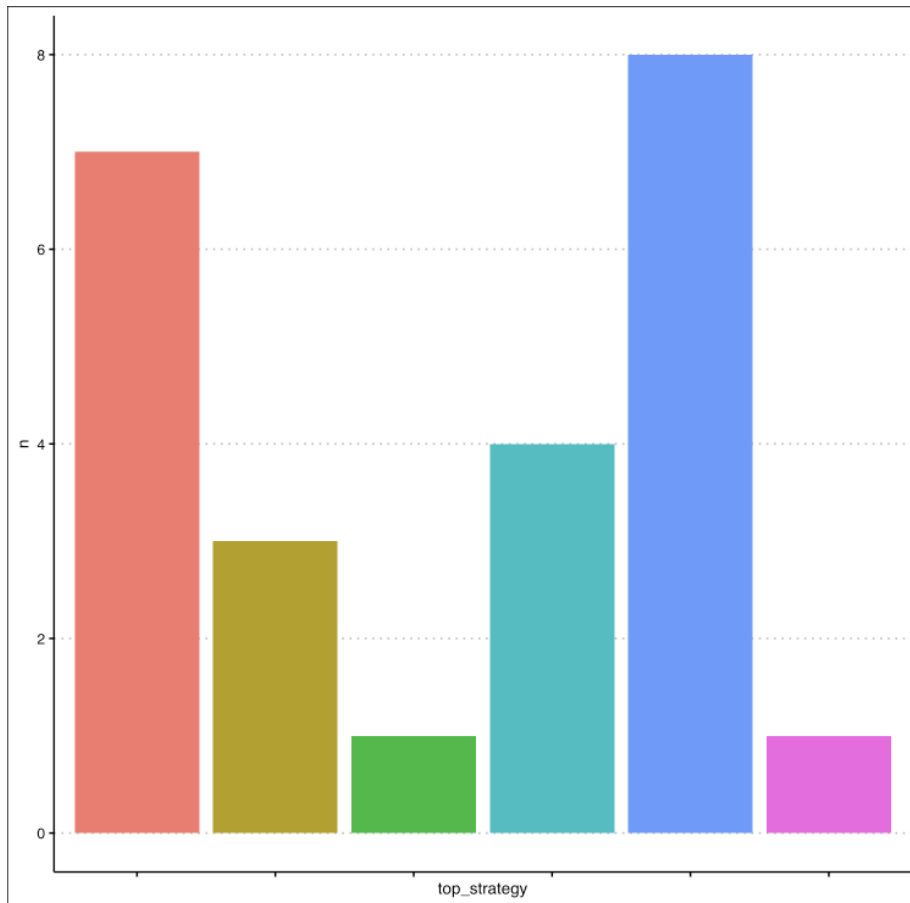
# your data



## strategy

- Do practice problems
- Flashcards
- Highlight (in notes/slides/books)
- I give a lecture to my stuffed animals using my notes and real life examples
- Make outlines or review sheets
- Memorize
- Practice recall (self-testing)
- Re-reading notes/slides/textbook
- Rewrite notes
- Study with a group of students
- Think of real-life examples
- Use mnemonics (acronyms, rhymes)

# your data



## top\_strategy

- Do practice problems
- Flashcards
- Make outlines or review sheets
- Re-reading notes/slides/textbook
- Rewrite notes
- Study with a group of students



# study strategies and their frequency

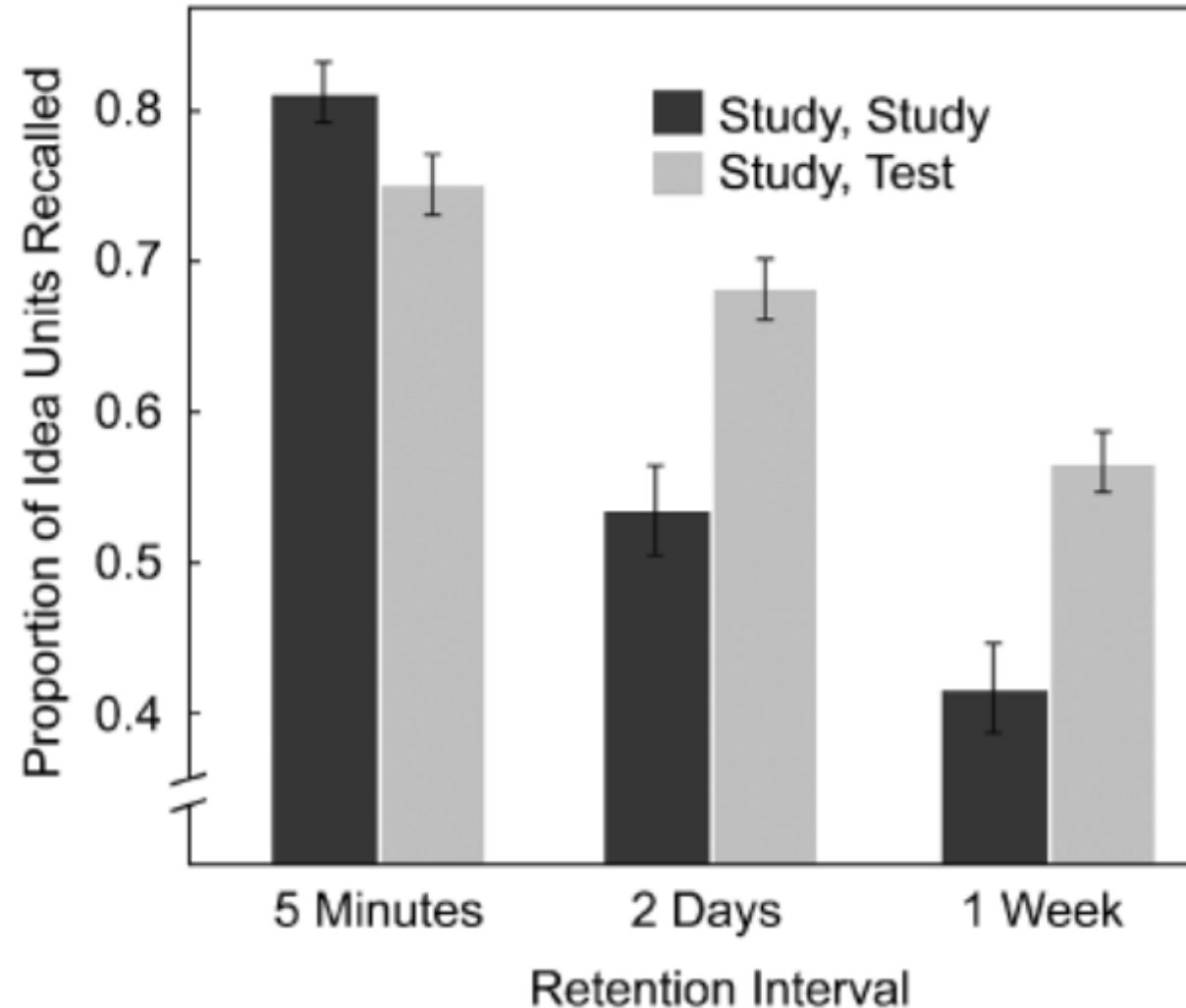
<i>Strategy</i>	<i>Percent who list strategy</i>		<i>Percent who rank as #1 strategy</i>		<i>Mean rank</i>
1. Rereading notes or textbook	83.6	(148)	54.8	(97)	1.5
2. Do practice problems	42.9	(76)	12.4	(22)	2.1
3. Flashcards	40.1	(71)	6.2	(11)	2.6
4. Rewrite notes	29.9	(53)	12.4	(22)	1.8
5. Study with a group of students	26.5	(47)	0.5	(1)	2.9
6. “Memorise”	18.6	(33)	5.6	(10)	2.0
7. Mnemonics (acronyms, rhymes, etc)	13.5	(24)	2.8	(5)	2.4
8. Make outlines or review sheets	12.9	(23)	3.9	(7)	2.1
9. Practise recall (self-testing)	10.7	(19)	1.1	(2)	2.5
10. Highlight (in notes or book)	6.2	(11)	1.6	(3)	2.3
11. Think of real life examples	4.5	(8)	0.5	(1)	2.8

# three effective study strategies

- retrieval practice
- elaborative encoding
- spaced practice



# retrieval practice



*Research Article*

## Test-Enhanced Learning

**Taking Memory Tests Improves Long-Term Retention**

Henry L. Roediger, III, and Jeffrey D. Karpicke

*Washington University in St. Louis*

a test can take many different forms for example:

- weekly quizzes
- writing what you remember from a lecture/reading
- teaching a friend or family member
- flashcards

# retrieval practice in a college classroom

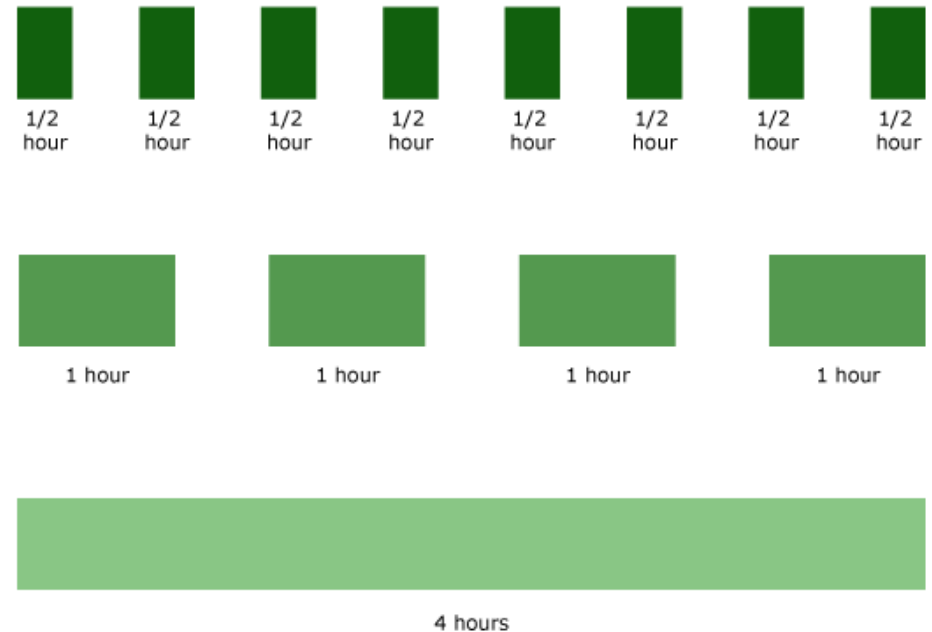
- undergraduate statistics for psychology at the University of Louisville
  - **section 1**: students answered ~4 questions during the last 5-10 minutes of class without looking at their notes
  - **section 2**: business as usual, nothing special at the end of class
- both sections took the same 4 exams throughout the semester
- on average, students in **section 1 (86%)** did better on exams than students in **section 2 (78%)**
- bottom line: spending 5-10 minutes after each class meeting to review that day's lecture from memory can boost exam performance

# elaborative encoding in a college classroom

- undergraduate biology students at Salisbury University
  - group 1: answered simple “why” questions embedded in textbook sections
  - group 2: read the same textbook sections twice
- all students took the same 105-question test
- on average, students in group 1 (76%) did better than students in group 2 (69%)
- bottom line: asking yourself “why” questions as you read a textbook (or other course material) can improve your memory for what you are reading.

# spaced practice

- distributing study sessions **over time (spacing)** instead of cramming them into one long study session (massing)



# spaced practice in medical school

- surgical residents in a Chicago medical school were trained in microsurgery (videos and practice on a synthetic artery model)
  - **group 1 (massed)**: 4 training sessions all in one day
  - **group 2 (spaced)**: 4 training sessions over one month
- a month after the last training, all residents took the same test, where they were asked to repair the damaged aorta of an anesthetized rat
- **~15%** of the residents in the **massed group failed** the task, whereas **all the residents in the spaced group succeeded (no one failed)**

# spaced practice in a college classroom

- undergraduate precalculus course for engineering students
  - **condition 1**: multiple questions on a topic appeared all on one quiz (**massed**)
  - **condition 2**: multiple questions about a topic were **distributed across 3 quizzes** administered over multiple weeks
- all students took the same precalculus final exam and the same readiness exam for calculus at the start of the following semester
- on average, students who took the **spaced quizzes did better** than the students who took **massed** quizzes on both exams
- bottom line: **spacing out your studying** over time can boost long-term retention of course material



# bottom line: study actively, not passively

- utilize **evidence-based effective** study strategies:
  - **retrieval practice**: quiz yourself, ask-a-friend, flash cards
  - **elaborative encoding**: ask “why” questions, use mental maps, paraphrase
  - **spaced practice**: space out your studying, do not cram!
- but...your **attitudes** toward effort also matter
  - a “growth mindset”
  - belonging
  - minimize distractions
  - plan early for assignments, assessments, and projects

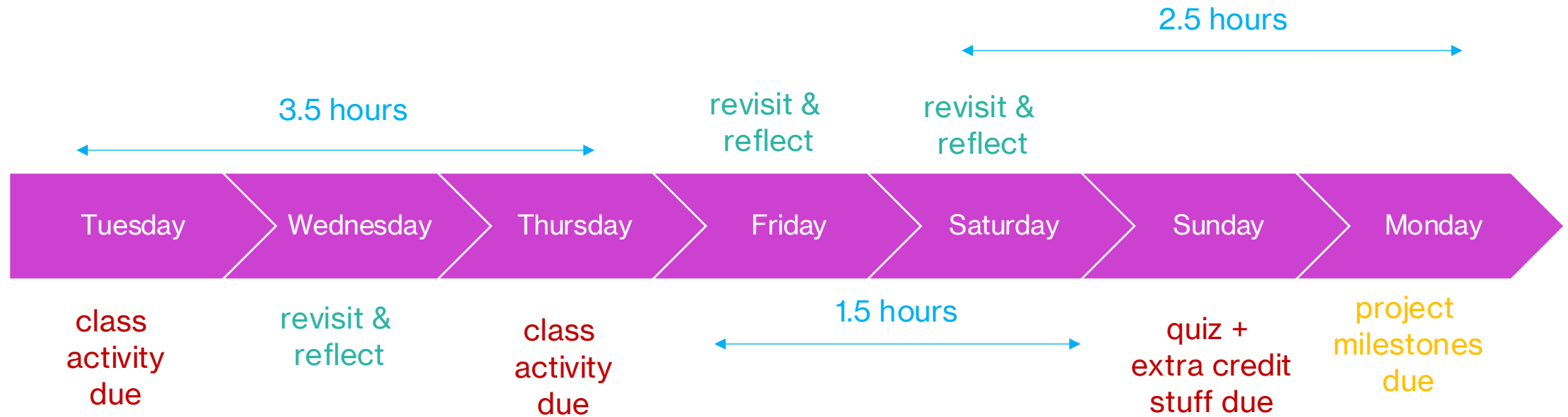


# the course is designed to support you

- retrieval practice
  - class participation via activities/reflections
  - weekly quizzes on each learning module
  - mid-semester assessments
  - submitting questions
- elaborative encoding
  - submitting questions
  - class activities
  - final projects that help you connect concepts learned in class via newer formats
- spaced practice
  - mid-semester assessments



# a weekly breakdown



# if I was a student...

- I would
  - USE A CALENDAR!!
  - keep track of project milestones a week ahead of time
  - schedule in-person/zoom time with group partner(s) to work on milestones
  - use retrieval practice / elaborative encoding strategies
  - make high-quality notes in class

# when you have thoughts and questions

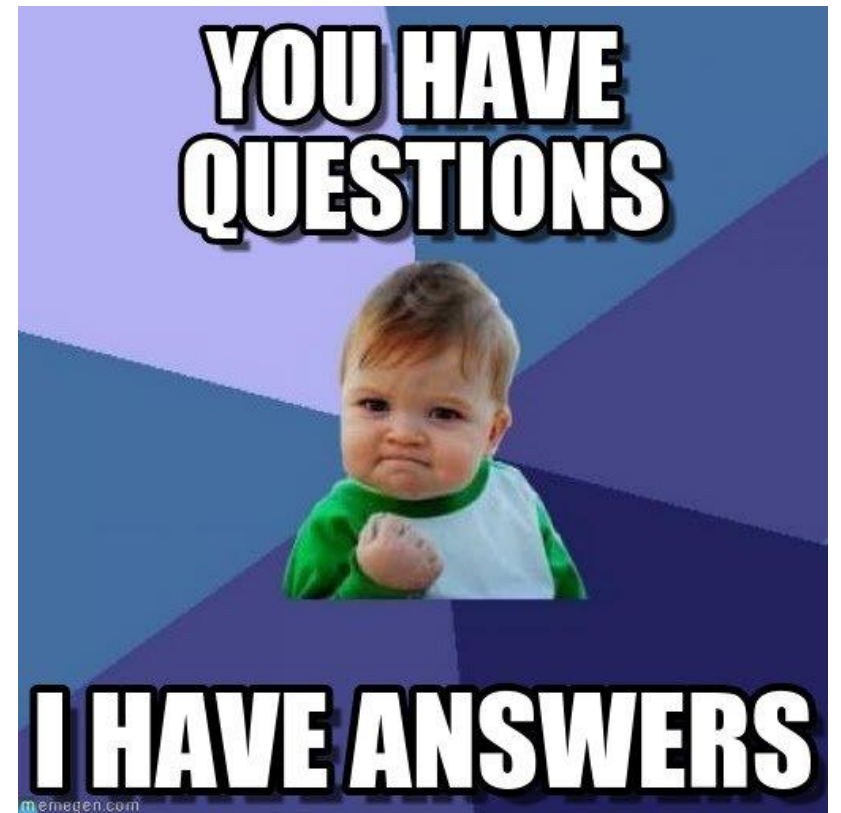
## Prof. Kumar's office hours (Kanbar 217):

- Tuesdays & Thursdays, 4.15 PM -5.30 PM
- Fridays, 11 AM - 12.45 PM (with some exceptions)

## Jennifer's office hours

Please view the [schedule](#) for Jennifer's review sessions/office hours.

- **office hours**: these are YOUR hours!
- also: meetings by **appointment**
- also: anonymous **feedback**



# reasons to come to office hours (and whose)

- Prof. Kumar
  - Qs about material
  - Qs about course policies/assessments/grades
  - reflections on the classroom experience
- Jennifer
  - discussions about final project
  - informal feedback about course pace
  - Qs about Canvas deadlines/due dates
  - review sessions before assessments



# pick the email you prefer

email 1

subject line: (no subject)

Hello,

I did the assignment for this week, and I am unsure about my grade. I thought I attempted all the questions, but it says I did not attempt two. Would be great if you could look into this!

email 2

subject line: PSYC2040: Week 3 quiz issue

Hello Professor,

I'm in your Cognition class. I did the Week 3 quiz and I am unsure about my grade. I thought I attempted all the questions, but when I look into Canvas, it says I did not attempt two. I would appreciate if you could look into this.

Thank you,  
Taylor Swift



# Email isn't just annoying to Gen Z workers—it's stressing them out

Published Tue, Apr 23 2024 • 1:26 PM EDT

A majority of people say the volume of work emails they get each day is stressful, according to a recent survey of 2,000 U.S. office workers from Babbel, the language learning platform. But Gen Z workers ages 18 to 24 are the most likely to let those messages pile up.

More than a third, 36%, of Gen Z workers say they have over 1,000 unread emails in their inbox, compared with 18% of office workers overall.

They're also more likely than other age groups to say they've sent an email they regret, with 1 in 5 Gen Z professionals saying they "very often" regret the emails they send.

"From our findings, Gen Z appears to struggle the most with email stress and stacking up a huge quantity of unread emails due to a combination of factors," says Esteban Touma, a linguistics and culture expert at Babbel.

"Gen Z's communication preferences are heavily influenced by the prevalence of instant messaging platforms and social media," he says. Platforms like Snapchat and Instagram, for example, prioritize instantaneous communication, informality and visual cues.

On the other hand, "the structured and formal nature of email communication may feel unfamiliar and more complicated to many [Gen Zers]," Touma says.

[story link](#)



# a note about emails

- emails (unfortunately) are the default mechanism for professional interaction
- please **address the person** you are emailing (Prof. Kumar, Jennifer) and use a **relevant subject line** with the course title/number
- if an email is sent to you or a small group, please **respond** by the end of the day
- if you ask a question and get a response, **please acknowledge the reply**

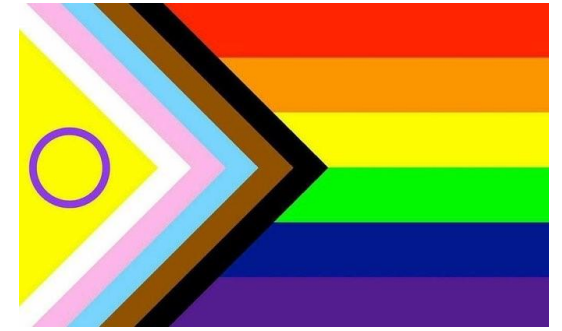
subject line: PSYC2040: Week 3 quiz issue

Hello Professor,

I'm in your Cognition class. I did the Week 3 quiz and I am unsure about my grade. I thought I attempted all the questions, but when I look into Canvas, it says I did not attempt two. I would appreciate if you could look into this.

Thank you,  
Taylor Swift

# valuing our voices



- I will try my very best to create an **inclusive environment** for all of you
  - we are all **different** and that is a **strength**
  - we also exist **beyond the classroom!**

# next class



- what is cognition?

## Prep



### Before Tuesday

- Complete the [pre-class survey](#). (1 extra credit point)
- Read the [syllabus](#) for this course. If you have questions about the syllabus, then please ask them in class or in the survey.

### Before Thursday

- [Complete W1 Activity 2](#)

### After Thursday

- See the [Apply](#) section!