

# PSYC 294\_01 & PSYC 294\_L1

## SENSATION & PERCEPTION + LAB



### COURSE OVERVIEW

Welcome to Sensation & Perception! The fundamental question driving this course is how we turn physical energy from the environment (e.g., light, sound waves, chemicals) into meaningful perceptual experiences. Along the

way, we'll answer questions like: Why does lemonade taste especially sour after eating a bite of cake? What factors drive individual differences in flavor perception and preferences? Why can some people handle spicy food better than others? Why does being distracted make painful experiences more tolerable? Why do you feel like you're spinning in the opposite direction when you stop spinning in one direction? How do we know where sounds are coming from if we're not looking at their source? How do we maintain a constant perception of the color of an object under different colors of illumination? Why does it appear that the world is moving up after staring at a waterfall? What's up with #TheDress and Yanny/Laurel?

In this course, we'll explore the processes by which physical stimuli are converted into neural code and how that code is interpreted to render our perceptual experience of the world. And, of course, we'll have some fun along the way.

**Class:** TTH 1:20–2:50, THDA (Theater) 101

**Lab:** T 3:00–4:30, THDA 101

**Professor:** Violet Brown

**office:** OLRI 357

**email:** [vbrown2@macalester.edu](mailto:vbrown2@macalester.edu)

**appointments:** [tinyurl.com/chatwithvb](https://tinyurl.com/chatwithvb)

### COURSE FORMAT AND MATERIALS

This course includes lectures, discussions, problem sets, group work, activities, and demonstrations. You are expected to attend class.

This syllabus and other important course materials—including readings, the schedule of topics we'll cover (the exact schedule is subject to change), and assignment details—are available on Moodle. There is no textbook for this course. Readings include information that complements (rather than replicates) what we do in class. Readings are required and should be completed prior to the class for which they are assigned.



Additional materials (PowerPoint slides, handouts, etc.) will be stored and shared via **Google Drive**. (Moodle -> Course Logistics).

## WORKING WITH VIOLET

As the professor of this course, I'm eager to help you throughout your learning journey, and I hope you're comfortable reaching out to me with questions and concerns. For quick questions, email is best. For more complicated questions, book a time to meet with me at [tinyurl.com/chatwithvb](https://tinyurl.com/chatwithvb).

That link is intended to make setting up an appointment easy and low stress. Please don't take the fact that I don't have "open" office hours as a sign that I don't want to meet with you. I REALLY DO. The reason I do it this way is that I've found that many students feel more comfortable meeting with me if they know they're guaranteed 100% of my attention and won't have to wait in line. If none of the available times work for you, that doesn't mean I can't meet; I don't have every open hour in my schedule available for appointments, so if you're busy during those times, just send me an email and we'll find a time to meet. That said, **if my office door is open, feel free to pop in!**



[tinyurl.com/chatwithvb](https://tinyurl.com/chatwithvb)

## INDIVIDUAL DIFFERENCES

There will be in-class demonstrations that involve making sensory discriminations (e.g., identifying sounds or colors) that are based on typical sensory processing abilities. Please let Violet know if you have any concerns about being able to complete these tasks (e.g., you have atypical color processing or are hard-of-hearing) and we'll make alternative arrangements...typically this just means that I'll remember to be extra thorough when verbally describing the perceptual experiences!

## OTHER FINE PRINT

Students may find themselves limited in their ability to accomplish course requirements for a variety of reasons, including but not limited to visible or non-visible physical disability or chronic illness, learning disability, mental illness, and bereavement processes. I aim to provide an inclusive and safe environment for all students and am happy to work with the relevant office(s) on campus to maintain an accessible and accommodating classroom for all. **Please notify me of any accommodation needs as soon as possible;** this is especially important for this course given our regular in-class quizzes (see the "Course Grading" and "Contract for an A-" sections for details).

Let's work together to make this a respectful and positive classroom atmosphere. This includes silencing and stowing phones, using laptops for note taking only, and being respectful of others.

## TIPS ABOUT NOTE-TAKING

In previous courses I've taught, I've noticed students vigorously typing during the lecture and then later realizing that they missed a lot of what I said or even mistyped and then claimed that I said something I didn't. I share slides immediately after class, and I guarantee you don't type as quickly as I speak, so I highly recommend only typing brief notes when I say something that is clearly important but isn't on the slide. If you're typing, you're not listening closely to what I'm saying, so think carefully about whether you really need to be taking notes on what you're typing in class.

# COURSE GRADING

I struggle immensely with the traditional grading system. I find that it tends to undermine rather than enhance intrinsic motivation to learn and discover, and leads to many of our conversations being about grades and how to do better on the next quiz/assignment rather than on learning.

I want to build intrinsic motivation to learn. Grades can get in the way of that. So you know what? Let's do away with them. In this course, you won't receive a grade on any assignment. **This is not to say that you won't receive a grade in this course.** You will! Welcome to college. But it won't be determined by the weighted average of your numerical score on numerous assignments. Instead, it will be influenced by the time and effort you put into the assignments; completing assignments thoroughly and on time; your productive struggle for knowledge and growth; and your willingness to ask questions, take chances, make mistakes, and learn from them.

On the next two pages, you'll find a "**contract for an A-**," which outlines the minimum requirements for attaining an A- in the class and the lab. If you stay on contract, you're guaranteed at least an A-, and to get an A, you'll have to do exceptionally well on the quizzes, complete nearly all warm-up questions, not have any unexcused absences (see below), write exceptional lab reports, etc. (more details below). If you end up off contract, we'll switch to a more traditional grading approach, although your final grade will still be determined by a one-on-one conversation at the end of term where together we'll arrive at a grade based on evidence accumulated throughout the term (see below for more details).

**Not receiving a numerical/letter grade on individual assignments does not mean you won't receive feedback.** You will. Lots of it. In case it wasn't clear from this document, I tend to be quite thorough in my descriptions, and this is true of the feedback I provide as well. Please trust me when I say that you'll know exactly how you're doing in the course. I promise to return quizzes to you promptly, and you'll receive lots of feedback on your written work (i.e., lab reports). But, in case you're worried about not knowing how you're doing, you'll meet with me at the five week point to check in, and you are always warmly welcome to set up additional meetings to check in about your current grade at any point throughout the term...as long as you promise to talk about content, too 😊

## WHAT IF I END UP OFF CONTRACT?

As stated above, if you stay on contract, you'll receive at minimum an A- in the course. If you fall off contract, we'll switch to a more traditional grading approach (see scale below). For the class, think of the breakdown this way: ~70% of your grade will be determined based on quiz performance and ~30% will be "flex" (i.e., determined based on attendance, participation, warm-up questions, and our conversation). The same goes for the lab, except lab reports will encompass ~70% of your final grade and the remaining ~30% will be "flex."

| Letter | Lowest  | Highest  | Letter | Lowest  | Highest | Letter | Lowest  | Highest |
|--------|---------|----------|--------|---------|---------|--------|---------|---------|
| A      | 93.00 % | 100.00 % | C+     | 77.00 % | 79.99 % | D-     | 60.00 % | 62.99 % |
| A-     | 90.00 % | 92.99 %  | C      | 73.00 % | 76.99 % | F      | 0.00 %  | 59.99 % |
| B+     | 87.00 % | 89.99 %  | C-     | 70.00 % | 72.99 % |        |         |         |
| B      | 83.00 % | 86.99 %  | D+     | 67.00 % | 69.99 % |        |         |         |
| B-     | 80.00 % | 82.99 %  | D      | 63.00 % | 66.99 % |        |         |         |

# CONTRACT FOR AN A-

## CLASS:

- **Quizzes:** There will be nine quizzes over the course of the term—eight shorter in-class quizzes and one longer take-home quiz at the end of the term.
  - **To receive an A- in the course,** you must take all quizzes and consistently perform well on them. Although I won't calculate your grade as the weighted sum of quiz grades, you can't get an A- in the course if you don't do well on quizzes (this typically means averaging at least ~85% on quizzes). Receiving an A in the course will require performing exceptionally well on average.
- **Warm-Up Questions (WUQs):** Most days, there will be questions on Moodle that cover material from the reading. These WUQs should be completed at least one hour before class starts. They are short, low-pressure questions about basic factual information from the reading for that day, and are designed to deter procrastination, keep you on track, and ensure you've gotten the key information from the reading so you can build on that during class. Plus, they let Violet know what's hard or confusing for the class as a whole! They are untimed but shouldn't take more than 15 minutes.

WUQs consist of two parts:

- **Multiple choice/fill-in-the-blank/matching:** These are the factual questions based on the reading. They're designed to help you understand concepts you're unclear on via feedback, so you're expected to answer each question until you get it right: Answer a question, click "check," answer it again if you got it wrong, check it again, etc. That means you'll end up submitting a perfect set of questions each time (though Moodle will keep track of how many attempts it takes).
  - **Free-response:** WUQs also include a free-response box where you are expected to write a thoughtful response to the reading, ask a question, comment on what was confusing, make connections with other topics, etc. It does not need to be long, but it should be thoughtful.
  - **To receive an A- in the course,** you must skip no more than three WUQs over the course of the term. For a WUQ submission to count, you must demonstrate to me that you engaged deeply with the reading in the free-response question; typically this means writing more than three sentences, but I care much more about content than length. Note that you're always expected to complete the reading, even if you decide to skip the associated WUQ.
- **Problem sets, attendance, and participation:** Although the format of the class is lecture-based, I break up my lectures with problem sets. The reason for this is to give us all a little break from lecturing, to give you time to noodle on the topics we just covered and come up with questions, and to give you a chance to apply and solidify the concepts we just learned so nobody gets left behind. The sections labeled "Part 1," "Part 2," etc. are the sections we'll complete together in class. All problem sets will have these parts, because the lecture is structured around them. Any sections labeled "Extras" are totally optional, but a great way to show me that you're putting in additional effort.
    - **To receive an A- in the course,** you must attend all classes unless you're sick, observing a holiday, or out of town for unavoidable travel (e.g., participating in athletic events, attending conferences, family emergencies, etc.). You're allowed two "freebies" over the course of the term (i.e., you may skip two classes without warning...but then you'll miss out on all the fun and learning!). Regardless, I'd appreciate an email letting me know ahead of time, even if it's a permitted absence. **Also note that you must submit all problem sets, even if you can't make it to class.** Failing to submit more than one problem set for a missed class automatically puts you off contract; failing to submit one will result in an email from me asking you to submit ASAP.

# CONTRACT FOR AN A-

## LAB:

- **Lab reports:** You'll write three lab write-ups total: two lab reports (one very short one and one longer "final" lab report) as well as one mini lab report/write-up.
  - **To receive an A- in the lab**, you must turn in all lab reports on time (unless you specifically request an extension at least one week in advance), they must contain all required sections, they must be well-written, they must strictly adhere to APA formatting guidelines (if requested), and **all writing must be your own/your group's work** (i.e., not written by AI; see the next page for more on my AI policy). This doesn't mean you're on your own though! I'm always open to answering questions and reading drafts/sections ahead of time if it would be helpful.
- **Other lab assignments:** Lab time will often be focused around completing a lab handout or a problem set associated with a lab-related lecture.
  - **To receive an A- in the lab**, you must turn in all lab assignments (e.g., in-class problem sets, lab handouts, etc.), and they must be thorough and complete, demonstrating that effort and care went into them. Unless otherwise noted, these are due by 10pm on the day of lab (you should be able to finish most if not all of it in lab!).
- **Attendance and participation:** Same as above.

## A note about extensions:

Extensions will be granted on a case-by-case basis, but you need to talk to me at least three days before the deadline if you want an extension. The concepts we'll cover in this course really build on one another, so if you ask for multiple extensions and fall behind, it will be difficult to catch up.

**\*\* Please note: Additional assignments will not be given at the end of the term to make up for breaking contract.\*\***

# A NOTE ABOUT YOUR HEALTH AND WELL-BEING

A thing about me is that I REALLY value your health and wellbeing. I want you to be successful in this class and work hard and learn a ton, but I want you to keep in mind that you're a human being with a human body and human needs. SO please please please balance your success with rest, exercise, and attention to your mental and physical health. Hey, listen to me: Working until exhaustion is not a badge of honor; it's a sign that things are out of balance. I assign short readings and reasonable assignments because I want you to do them fully, but more importantly, I want you to learn as much as you possibly can *without destroying yourselves*. I want you to learn a ton, but not more than you can within reason.

This is all to say: Please take good care of yourselves. It's hard enough being human, and being in college poses additional challenges, so remember to give yourselves a little grace and stay gentle. In the wise words of Sara Bareilles, "You might feel crazy, but babe, that's just passing through." Hang in there. Outside of class, remember to move your body (take my "Psychology of Athletics: From Elite Performance to Everyday Exercise" course if you want to learn about the neurocognitive and mental health benefits of exercise!), connect with others while taking time for yourself when you need it, and reach out to me and/or the many, many resources we're extremely lucky to have here at Mac if you're struggling (academically or otherwise). In class, if you're hungry, please eat! If you're thirsty, please drink water! If you need to use the restroom or step out for any reason, you do you! No need to ask; I'll emphatically say "yes" every time.

*[I hid not one but two Brandi Carlile lyrics in this section...email me if you can find either or both!]*

# CHAT GPT AND OTHER AI

The goal of this course is for you to learn a lot, think critically and creatively, and craft arguments; the assignments themselves are simply a permanent record of this process. Relying on AI to answer quiz questions or produce writing circumvents the educational experience.

I have crafted the take-home quiz at the end of the term in such a way that it is not particularly conducive to AI assistance. Therefore, asking AI to “help” is likely to lead to rather vapid answers that will not earn high marks. Also note that all online assignments are tightly time constrained. I **promise** you'll be better served studying hard and using the allotted time to think and write rather than outsource your thinking to a large language model.

The only way to learn is to practice and struggle: **The struggle is part of the learning process.** So rather than using AI, I encourage you to use your brain, me, your peers, and even good ol' fashioned Google instead. For better or for worse, the most effective way to learn is the hard way.

All that said, **here are my hard-and-fast rules regarding AI:**

- 1) If you use AI for an assignment, I ask that you tell me how. Just like you'd cite any other resource, it's important for you to give credit where credit is due (same with consulting other students on assignments: Let me know who you worked with!). Be honest; you won't get in trouble. If you've used AI in a way that I consider inappropriate, I'll let you know for next time.
- 2) You should *never* copy/paste words produced by generative AI and pass them off as your own. That's plagiarism. Be very aware of this as you write your lab reports; I strongly suggest not using AI at all for those three assignments.
- 3) In-class quizzes are closed-book; that of course means no AI.
- 4) I retain the right to ask you not to use AI on any assignments. If I ask you not to use AI, please don't.

Be aware that in addition to producing rather superficial, formulaic text, AI can give you factually inaccurate information, make up citations that don't exist, and omit key ideas. In addition, AI “reproduces biases that exist in the texts used to train [it] (incl. citational exclusions and inequities, and hegemonic views)” (see van Rooij, 2022). Part of our job as scholars is to question the existing assumptions of our discipline and work to improve them, not just repackage them.

Know how I came up with this policy? I sat down, struggled, and refined it until I found the ideas I was looking for.



# CLASS SCHEDULE (subject to change)

| Week                                                                                                                                          | Day   | Topic                                       |                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------|--------------------------------------------|
| 1                                                                                                                                             | Tues  | Introduction & themes                       |                                            |
|                                                                                                                                               | Thurs | Neuroscience                                |                                            |
| 2                                                                                                                                             | Tues  | Signal detection theory                     |                                            |
|                                                                                                                                               | Thurs | Gustation                                   |                                            |
| 3                                                                                                                                             | Tues  | Olfaction I                                 | Quiz 1: Intro, neuro, SDT                  |
|                                                                                                                                               | Thurs | Olfaction II                                |                                            |
| 4                                                                                                                                             | Tues  | Somatosensation                             | Quiz 2: Gustation, olfaction               |
|                                                                                                                                               | Thurs | Pain I                                      |                                            |
| 5                                                                                                                                             | Tues  | Pain II                                     |                                            |
|                                                                                                                                               | Thurs | Flavor                                      |                                            |
| 6                                                                                                                                             | Tues  | Vestibular I                                | Quiz 3: Somatosensation, pain, flavor      |
|                                                                                                                                               | Thurs | <b>Fall break (no class)</b>                |                                            |
| 7                                                                                                                                             | Tues  | Vestibular II                               |                                            |
|                                                                                                                                               | Thurs | Audition: sound                             |                                            |
| 8                                                                                                                                             | Tues  | Audition: transduction                      | Quiz 4: Vestibular, sound                  |
|                                                                                                                                               | Thurs | Audition: localization                      |                                            |
| 9                                                                                                                                             | Tues  | Audition: auditory scene analysis           |                                            |
|                                                                                                                                               | Thurs | Audition: speech                            |                                            |
| 10                                                                                                                                            | Tues  | Vision: light & the eye                     | Quiz 5: Audition                           |
|                                                                                                                                               | Thurs | Vision: brightness & lateral inhibition     |                                            |
| 11                                                                                                                                            | Tues  | Vision: color I                             | Quiz 6: Light, the eye, lateral inhibition |
|                                                                                                                                               | Thurs | <b>Violet is at Psychonomics (no class)</b> |                                            |
| 12                                                                                                                                            | Tues  | Vision: color II                            |                                            |
|                                                                                                                                               | Thurs | <b>Thanksgiving break (no class)</b>        |                                            |
| 13                                                                                                                                            | Tues  | Vision: motion                              | Quiz 7: Color                              |
|                                                                                                                                               | Thurs | Vision: depth & size                        |                                            |
| 14                                                                                                                                            | Tues  | Vision: objects & faces                     | Quiz 8: Motion, depth, size                |
|                                                                                                                                               | Thurs | Conclusions                                 |                                            |
| <b>ONLINE Quiz 9:</b> Synesthesia, wrap-up, connections across senses<br>Due at 5pm on the Sunday after our last class (i.e., Week 14 Sunday) |       |                                             |                                            |



Quizzes on topics [usually] from the previous week. All but the last one (Quiz 9) will be relatively short in-person quizzes that last ~10–30 minutes (depending on the number and nature of questions; e.g., multiple choice, fill-in-the-blank, check all that apply, written responses, etc.).

The final quiz will be open-book but **timed** and completed on Moodle. Study as you would for an in-person exam. The questions are intended to make you think and are not conducive to AI.



Day off!

# LAB SCHEDULE (subject to change)

| Week                                                                       | Day   | Topic                                                        |                                                   |
|----------------------------------------------------------------------------|-------|--------------------------------------------------------------|---------------------------------------------------|
| 1                                                                          | Tues  | Research methods lecture                                     |                                                   |
| 2                                                                          | Tues  | Applied research methods activity                            |                                                   |
| 3                                                                          | Tues  | Psychophysics                                                |                                                   |
| 4                                                                          | Tues  | Open science                                                 |                                                   |
| 5                                                                          | Tues  | Flavor data collection                                       |                                                   |
| 6                                                                          | Tues  | Fall break (no lab)                                          |                                                   |
| 7                                                                          | Tues  | Flavor data analysis & write-up                              |                                                   |
| 8                                                                          | Tues  | Auditory demos                                               | Flavor lab report due @10 pm via Moodle           |
| 9                                                                          | Tues  | Measurement (listening effort example)                       |                                                   |
| 10                                                                         | Tues  | Measurement (experiment design and mini-lab report write-up) |                                                   |
| 11                                                                         | Tues  | Color demos                                                  |                                                   |
|                                                                            | Thurs |                                                              | Measurement mini-lab report due @10 pm via Moodle |
| 12                                                                         | Tues  | Final project prep                                           |                                                   |
| 13                                                                         | Tues  | Final project data collection                                |                                                   |
| 14                                                                         | Tues  | Synesthesia & wrap-up                                        |                                                   |
| Final lab report due at 5pm on the first day of finals. Submit via Moodle. |       |                                                              |                                                   |



Lab report/mini-lab report due



Day off!