

AP Research Summer Thinking

Mr. Goraczko 2025-2026

Congratulations on signing up for AP Research, a fun, rewarding course that will stretch you in ways no other class has!

As you plan ahead, know that capital-R Research takes significant time and headspace. It requires planning, time management, and follow-through. Make sure the rest of your schedule allows for the time, energy, and gumption needed to be successful in the class. A study hall in your schedule is HIGHLY recommended to allow you the flexibility to meet with mentors and conduct your research. Students without one—or students who overextend themselves with too many APs—often struggle to keep up with the many due dates and deadlines.

AP Research is most rewarding when students a) know what they're getting themselves into and b) select a topic they love. After all, you'll spend a whole year on this process, delving into this topic, reading about it ad nauseum. (Eventually you will need to read and report on ~20 sources pertaining to your topic!) To facilitate that long-term commitment you'll eventually make, you will benefit from orienting yourself to the structure of the course and doing some thinking over the summer to help you settle on a potential topic and research question. In service of these goals, please complete the following:

STEP 1

Read the course description and course and exam description: It's important to know what you're committing to when taking this course. Here's a brief overview of the course from the fine folks at College Board that will give you the 30,000 foot view of the course:

AP Research, the second course in the AP Capstone™ experience, allows students to deeply explore an academic topic, problem, issue, or idea of individual interest.

Students design, plan, and implement a yearlong investigation to address a research question. Through this inquiry, they further the skills they acquired in the AP Seminar course by learning research methodology, employing ethical research practices, and accessing, analyzing, and synthesizing information. Students reflect on their skill development, document their processes, and curate the artifacts of their scholarly work through a process and reflection portfolio.

The course culminates in an academic paper of 4,000–5,000 words (accompanied by a performance, exhibit, or product where applicable) and a presentation with an oral defense.

The best way to orient yourself to the more granular elements of the course is to read (a thorough, prolonged skim is fine) the [AP Research course and exam description from College Board](#). As you read through the document, you may have questions, comments, or concerns that you would like addressed in the opening days and weeks of class. Please post those questions to this [question parking lot document](#). I may try to periodically pop into this document in the summer to check on and supply answers to your questions.

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STEP 2

[Comb through high-scoring sample papers](#): The final paper for this course accounts for 75% of your AP score and significant portion of your MP4 grade. To better understand what you'll be working towards in the course, it would, therefore, behoove you to familiarize yourself with the format of the final paper, which also serves as the structure for the POD. You should [read 3 papers](#) from the supplied options (see appendix A) in the discipline/s that interest/s you most. (These are all high-scoring papers. To look at lower scoring papers, click on the title of this assignment and search for papers marked as Sample E, F, G, H, I, J.) As you read the three high-scoring samples, [annotate them](#) (digitally or physically). Be sure to read the scoring commentary to understand how the students effectively meet the rubric requirements. After reading each paper, [create an annotated bibliography entry for all three](#). If you need guidance on how to do that, consult the links below.

[Purdue OWL - Annotated Bibliography Breakdown](#)

[Purdue OWL- Annotated Bibliography Samples](#)

[Cornell University LibGuides: How to Prepare an Annotated Bibliography: The Annotated Bibliography](#)

(Eventually when you return in the fall, you'll take one of those 3 papers—the one most aligned with your own research interests—and distill it down to [a three-minute thesis presentation](#) that you will present to the class; it's, therefore, important to thoroughly understand that third paper well enough that you can share its essential elements with your classmates in just three minutes. This exercise of reading, annotating, synthesizing, evaluating, and presenting will prepare you for the type of work you'll do extensively in AP Research.)

Arts (Music/Theatre/Photography/Film Studies)

[Mama Mia! - Capturing the Art of Lighting Design: A Creative Approach](#)

[Music Chemistry: The Formula of K-Pop](#)

[A Reimagination of Abstract Photography Through the Natural World](#)

[The Swiss Film Industry](#)

[A Raw Film Analysis](#)

[Evolution of Horror Movie Soundtracks: From the 1930s to the Present](#)

Business/Finance

[Growth for Good: How Past Experiences Motivate Executives to Join Double Bottom Line Organizations in the Indian Construction Industry](#)

[Using Sentiment Analysis to Predict Google Stock Prices](#)

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Social Sciences

Anthropology

[“Not Asian Enough”: Authenticity and Chinese Cuisine](#)

Education/Educational Psychology

[Development and Creation of an AAPI School Curriculum to Counteract the Absence of AAPI Counterstories in Current Education](#)

[Making Health Education LGBTQ+ Inclusive in Vermont High Schools](#)

[Learning Through Cultural Barriers: The Impact of Hispanic Immigrant Parenting on their First-Generation Adolescent’s Academic Performance and its Correlation to the Imposter Syndrome Epidemic](#)

Gender Studies

[Views of Sex and Gender in the Northwest Florida Area](#)

Linguistics

[Adolescent Multilingualism: To What Extent Does Word Processing Speed and Reading Comprehension Vary with Natural and Tutored Acquisition Types of Multilingualism Among Adolescents at School X?](#)

Media Studies

[Science Fiction and Career Aspiration](#)

Psychology

[Conserving the Cute: A Psychological Analysis of Tucsonan Hikers](#)

Psychology (Environmental)

[Neighbourhood Design and Community: The Effect of Residential Street Type on Sense of Community in Southern Ontario High School Students](#)

STEM

Science (Biology- Macro/Micro)

[How can gut microbiota composition within SwHi and SwLo rats support or negate the Porsolt Swim Test?](#)

[The Thin-Layer Chromatography Analysis of Phospholipids in *Vibrio fischeri* with a focus on Cardiolipin](#)

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STEM (continued)

Science (Entomology)

[Drosophila Insulin Like Peptides: Causal Neuropeptide for Fly Aggression?](#)

[The Modification of Buildings Based on the Mounds of Macrotermes for the Purposes of Thermoregulation and the Elimination of the Need for Modern Air Conditioning](#)

[Mealworm Metabolism of Iron and Calcium](#)

Science (Environmental Studies)

[The Modification of Buildings Based on the Mounds of Macrotermes for the Purposes of Thermoregulation and the Elimination of the Need for Modern Air Conditioning](#)

[Investigating the effects of carbon-based RF aerogels on DSSCs with the purpose of increasing cell efficiency](#)

Science (Genetics)

[Special Considerations Concerning Genetic Testing in Minority Populations and Ethnicities](#)

Science (Medicine)

[Testing the Effectiveness of Pulmonary Macrophage Transplantations to treat Pulmonary Alveolar Proteinosis Caused by Neimann-Pick Type C](#)

[Accidental Viagra, Lethal Multivitamins, and Other Herbal Remedy Failures: A Content Analysis of FDA Warning Letters to Violative Manufacturers from 2005-2023](#)

[Analyzing the Prevalence of the Mediterranean Diet Within Connecticut Facilities that Care for Residents with Alzheimer's Disease](#)

Science (Physics)

[Investigating the Hardness of Water on the Rate of Cooling and its Relation to the Mpemba Effect](#)

Technology

[Quantitative Analysis of Android Permission Requests](#)

Engineering (Biomedical)

[The Classification of EMG Signals using Machine Learning for the Construction of a Silent Speech Interface](#)

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STEM (continued)

Engineering (Material Science)

[Folding Under Pressure Exploring the Properties of Nonstandard Origami Tessellations as Folded Cores in Sandwich Structures](#)

[Significance of Shoe Stiffness Deterioration in Carbon-Rodded and Carbon-Plated Shoes](#)

[The Modification of Buildings Based on the Mounds of Macrotermes for the Purposes of Thermoregulation and the Elimination of the Need for Modern Air Conditioning](#)

Engineering (Urban Planning)

[Neighbourhood Design and Community: The Effect of Residential Street Type on Sense of Community in Southern Ontario High School Students](#)

STEP 3

Find and watch 1 or 2 Presentation of Oral Defense videos on YouTube: The remaining 25% of your score from College Board is determined by your performance on a Presentation of Oral Defense (POD), a ~15 minute presentation of your research and its findings followed by a ~5 minute question session in which you reflect on and defend your work.

For privacy purposes, the College Board does not share recordings of the POD widely; they're meant only for teacher training (womp-womp), so I am not permitted to share them outside a classroom setting. Luckily, a smattering of proud researchers upload recordings of their POD to YouTube. I encourage you to watch a few presentations while looking at [the rubric that will be used to score your presentation](#). As you watch one of these presentations, please fill out the [POD feedback chart linked here](#).

Bullet points and sentence fragments are acceptable here. This should be a quick supplement to watching the video. If it feels onerous, you're probably doing too much.

[You can find a selection of YouTube options here.](#)

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STEP 4

[Generate a compost heap of sources](#): If you're not a gardener, a compost heap is a pile of scraps that slowly "cooks" and turns into rich, fertile soil. Over the summer, as you read, listen, watch things—and experience life more broadly—you'll gather scraps (sources/ideas) in the compost heap table linked in the title above. Some scraps you may stumble upon by chance in your summer travels, others you may seek out with purpose (especially if you have a strong sense of the topic you may want to research). Whatever the case may be, strive to add as many scraps as you can, but a minimum of 15 sources/publications are required. Your scraps may be comprised of books, scholarly articles, periodicals, podcast episodes, journals, videos, museum exhibits, etc. Your heap *may* center upon one specific area or topic of interest to you, but this is not a requirement; add scraps from any area or discipline that intrigues you and piques your curiosity. Allow the topics and ideas from the scraps you collect to cook and percolate over the long, hot summer so that you can discover a topic/area of inquiry that is rich and fertile for you. If you find yourself repeatedly thinking back to one of the scraps you add, days, weeks or months after you add it, that's a good sign that it may be a good topic to explore. For some of you, eventually two or three scraps may be combined to form a unique research topic that is interdisciplinary. That's the beauty of the compost heap; disparate ideas may live side-by-side and cook down. As you pile onto the heap, look for connections between the scraps and pay attention to what makes your heart go pitter patter.

A sample row in the table has been filled out to help model for you the depth of reflection that is expected. 2-3 sentences of reflection is sufficient. For this particular assignment I'm hoping for breadth, not depth. So if the reflection process feels onerous, you're doing it wrong. As suggested above, ideally this process happens slowly over the summer to allow for percolation and reflection on themes that emerge among your scraps. Don't procrastinate. 15 sources in the waning days of summer WILL feel onerous. 1-2 sources a week will be a breeze. Additionally your scraps can't "cook" if there's no time between when you gather them and when you return to school.

Below you'll find links that might help you find scraps, though you are welcome to find them wherever you'd like:

Scholarly databases

[WHS Library Databases](#)

[jstor.org](#) | Some articles are open-access. Others require an account. Email me with a title/link of any article you'd like to read and I can download & message you the article(s) you might be interested in reading

[scholar.google.com](#)

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YouTube channels

STEM & Science

CrashCourse | Educational videos on a variety of subjects, including science, history, and literature

Khan Academy | Free lessons and tutorials in math, science, economics, and humanities

Mark Rober | STEM-based experimental projects and engineering challenges

MinuteEarth | Short videos about Earth's natural phenomena and ecosystems

PBS Eons | Explores the history of life on Earth and evolutionary science

Seeker | Daily videos explaining science, technology, and cultural trends

SciShow | Fascinating science videos on various topics, from biology to physics

National Science Foundation News | Videos on scientific research, discoveries, and innovations across various fields

Current Events & Media

Vox | Explains current events and complex issues in politics, economics, and society

Wall Street Journal | News and analysis on global financial markets, politics, and business

BBC News | Global news and in-depth reports on world events

Bloomberg Technology | Technology news and business trends

The New York Times | News analysis, investigative reporting, and cultural stories

Tech, Design & Innovation

Big Think | Interviews with experts on topics related to philosophy, science, and culture

National Geographic | Documentaries and videos on nature, wildlife, and global cultures

The Verge | Tech news, product reviews, and futuristic innovations

Wired | Explores technology, science, culture, and design trends

Arts & Humanities

TED-Ed | Animated educational videos exploring a wide range of topics

CrashCourse | Educational videos on subjects including literature and history

Websites

Google Arts & Culture | Explore museum exhibits from around the world with interactive tools.

Coursera | An online learning platform offering courses from top universities and organizations worldwide.

Khan Academy | Free online courses and lessons in a variety of subjects that may pique your interest.

edX | An online learning platform offering high-quality courses from top universities and institutions globally.

MIT OpenCourseWare | Free access to course materials from the Massachusetts Institute of Technology (STEM-heavy).

Podcasts

General Research & Multidisciplinary

Hidden Brain Explores the unconscious patterns driving human behavior.

Freakonomics Radio Delves into the hidden side of economics and human behavior.

Ologies with Alie Ward Interviews with experts across various scientific disciplines.

The Ezra Klein Show In-depth conversations on societal issues.

Big Picture Science Explores surprising connections in science and technology.

The Infinite Monkey Cage A look at the world through scientists' eyes.

99% Invisible A weekly exploration of the process and power of design and architecture.

Science & Technology

Science Vs Investigates fads and trends, separating fact from fiction.

Radiolab Blends science and human stories.

The Skeptics' Guide to the Universe Discusses science news and critical thinking.

Nature Podcast Highlights the latest scientific research.

Short Wave Covers new discoveries and science headlines.

JAMA Network | Provides insights into the latest medical research and clinical practices with interviews with researchers.

Social Sciences & Humanities

You're Wrong About Revisits misunderstood events and topics.

Revisionist History Malcolm Gladwell re-examines overlooked events.

Philosophize This! Accessible and engaging discussions on philosophical ideas.

The Happiness Lab with Dr. Laurie Santos Explores the science of happiness and well-being.

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STEP 5

[Discover and reflect on mental models](#): Mental models can help us shape our thinking when tackling a complex problem. Check out the website [linked here](#) and read through the mental models that pertain to the academic discipline you are most interested in after having completed steps 2 (reading sample papers) and 4 (compost heap). Take note of any that make you stop and think or that spark your interest.

STEP 6

Prepare a PowerPoint, Canva, or Google slides presentation summarizing your summer thinking:

- Summarize your 3-5 most favorite/resonant compost heap scraps. Hint: It may be helpful to search for themes in the scraps you compile or look at a cross-disciplinary avenue to research. (Be prepared to summarize and share with your classmates and I what you found cool about these sources and how you could see these serving as inspiration for your potential research topic.)
- Describe at least 1 or 2 mental models that looked cool, useful, interesting or intriguing that might be useful to the work you'd like to do in the class.
- Pitch a few potential areas of inquiry/research topics that you wouldn't mind exploring for a whole year (!!!). While this pitch doesn't have to directly relate to your compost heap scraps, it'd be great/fun if it did! (This is just a preliminary pitch of ideas/areas of interest. You are not married to these ideas...yet. That being said, the more aligned these ideas are with what you eventually pursue, the better positioned you'll be for success in the course.)
- Craft ~3 potential research questions for these areas of inquiry/topics. Try to incorporate at least one of the mental models into one (or more) of your questions--be prepared to explain that mental model to your classmates and I and elaborate on how you think it could be applied to these specific lines of inquiry. If you need help developing a strong research question, consult these resources:
 - [How to Develop a STRONG Research Question | Scribbr](#) 🎓

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STEP 7 (OPTIONAL)

Read a research-centered book. While optional, this step will demonstrate the many avenues researchers explore, while also affording you a more comprehensive look into a specific topic of interest than journal articles will. (It will also likely provide some worthwhile scraps for your compost heap.)

Many of the books suggested in the attached list utilize mental models as they investigate a wide array of topics; it would be helpful to choose a book from an academic discipline you are interested in (e.g. biology, history, linguistics, psychology, etc) to hopefully help spark an idea for your own research. That being said if you find a research-centered book that better suits your interests than one of these books, please just run it by me (via email) and we can see if it will work for our purposes.

The books on the list should be readily available in print and/or audiobook formats from local public libraries, or I may have a copy I can lend you.

Please note: there is no need to take specific notes while reading, though you might use sticky notes to flag a particularly remarkable section, or a section that inspires you in some way. In the fall, if you choose to do this assignment, you will lead a casual book talk/discussion about what you found notable and I will offer an extra credit grade to be assigned to the marking period of your choosing.

Book Suggestions Containing Mental Models

General/Statistics/Data/Tech

The Signal and the Noise by Nate Silver

Everybody Lies: Big Data, New Data, and What the Internet Can Tell Us About Who We Really Are by Seth Stephens

Invisible Women by Caroline Criado-Perez

More than a Glitch: Confronting Race, Gender, and Ability Bias in Tech by Meredith Broussard

Arts/Design

Musicophilia: Tales of Music and the Brain by Oliver Sacks

The Design of Everyday Things by Don Norman

A Whole New Mind: Why Right-Brainers Will Rule the Future by Daniel Pink

The 99% Invisible City: A Field Guide to the Hidden World of Everyday Design by Roman Mars and Kurt Kohlstedt

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Psychology/Linguistics

Thinking, Fast and Slow by Daniel Kahneman

Superforecasting by Philip Tetlock

Drunk Tank Pink by Adam Alter

Nabokov's Favorite Word is Mauve by Ben Blatt

Situations Matter by Sam Sommers

The Man Who Mistook His Wife for a Hat and Other Tales by Oliver Sacks

Whistling Vivaldi by Claude Steele

Predictably Irrational: The Hidden Forces That Shape Our Decisions by Dan Ariely

Beyond Trans: Does Gender Matter? by Heath Fogg Davis

Think Again: The Power of Knowing What You Don't Know by Adam Grant

Saving Time: Life Beyond the Clock by Jenny Odell

Physical Sciences

Alchemy of the Air by Thomas Hager

A Brief History of Time by Stephen Hawking

Six Easy Pieces by Richard Feynman

The Extended Mind: The Power of Thinking Outside the Brain by Annie Murphy Paul

Finding the Mother Tree: Discovering the Wisdom of the Forest by Suzanne Simard

Food and Climate Change Without the Hot Air by Sarah Bridle

Education

The Teachers: A Year Inside America's Most Vulnerable Profession by Alexandra Robbins

Politics/History/Sociology/Economics

Stamped from the Beginning by Ibram X Kendi

The Sum of Us: What Racism Costs Everyone, by Heather McGhee

Freakonomics by Steven Levitt & Stephen J. Dubner

Think Like a Freak by Steven Levitt & Stephen J. Dubner

Poverty by America by Matt Desmond

Young and Restless – Girls Who sparked America's Revolution by Mattie Kahn

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Politics/History/Sociology/Economics (continued)

The Tipping Point by Malcolm Gladwell

Flash Boys by Michael Lewis

The Island at the Center of the World: The Epic Story of Dutch Manhattan and the Forgotten Colony that Shaped America by Russell Shorto

Alexander Hamilton by Ron Chernow

The Big Sort: Why the Clustering of Like-Minded American is Tearing Us Apart by Bill Bishop

The Warmth of Other Suns: The Epic Story of America's Great Migration by Isabel Wilkerson

Why We're Polarized by Ezra Klein

STEP 8

Get excited for an awesome year! Can't wait to meet you and work with you.

-Mr. Goraczko

Need to reach me over the summer with questions, concerns or comments?

Email pgoraczko@wsdweb.org

Please expect a delay between your message and my response; I don't check my email a ton over the summer, but be assured I will respond as soon as I see your email.

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Deliverables Due at the Beginning of the School Year Checklist

- Comments & questions relating to the Course and Exam Description posted to the question parking lot (Step 1)
- 3 Annotated High-Scoring Papers with 3 Annotated Bibliographies (Step 2)
- 1 POD feedback chart (Step 3)
- Compost Heap Chart with 15 sources (Step 4)
- Summer Thinking Presentation (Step 6)
- Optional Summer Reading Book Talk