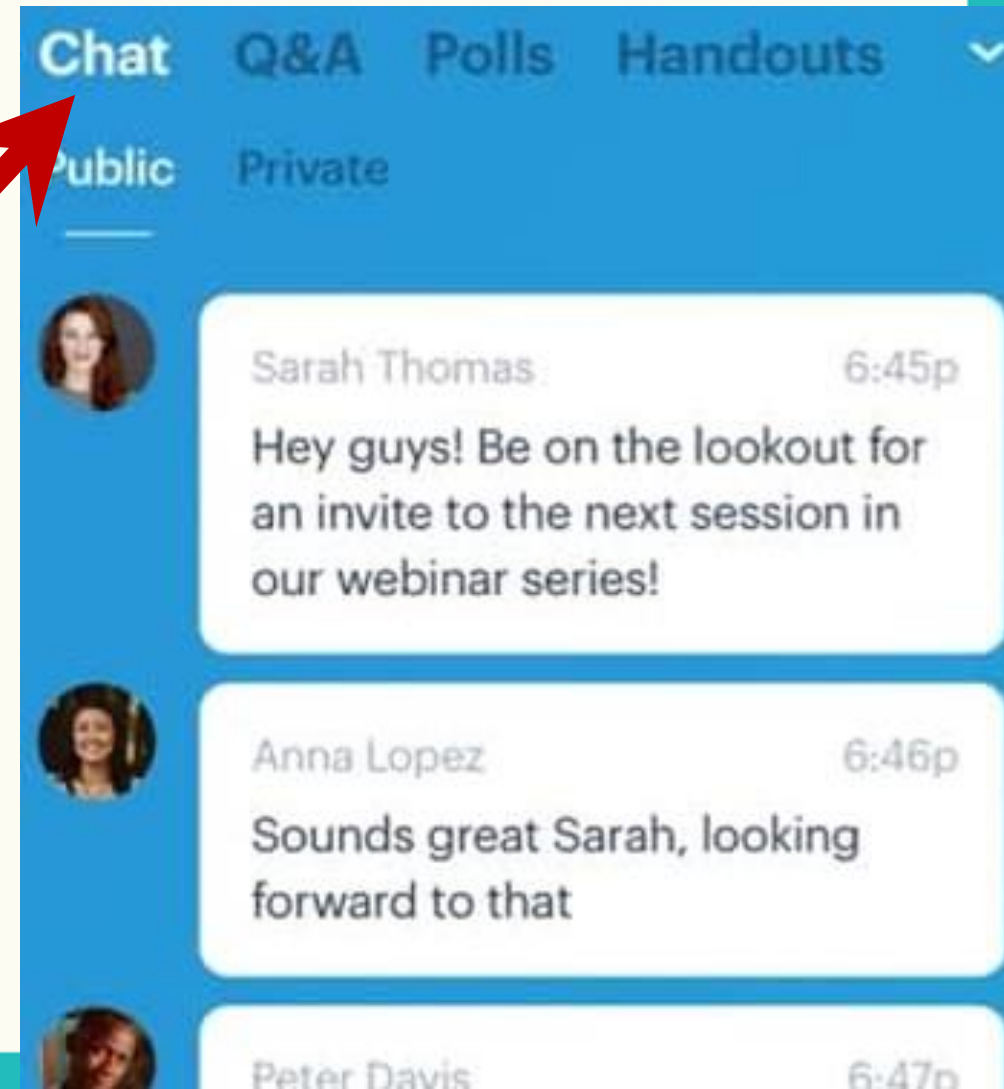


How to Study for the AP BIOLOGY Exam

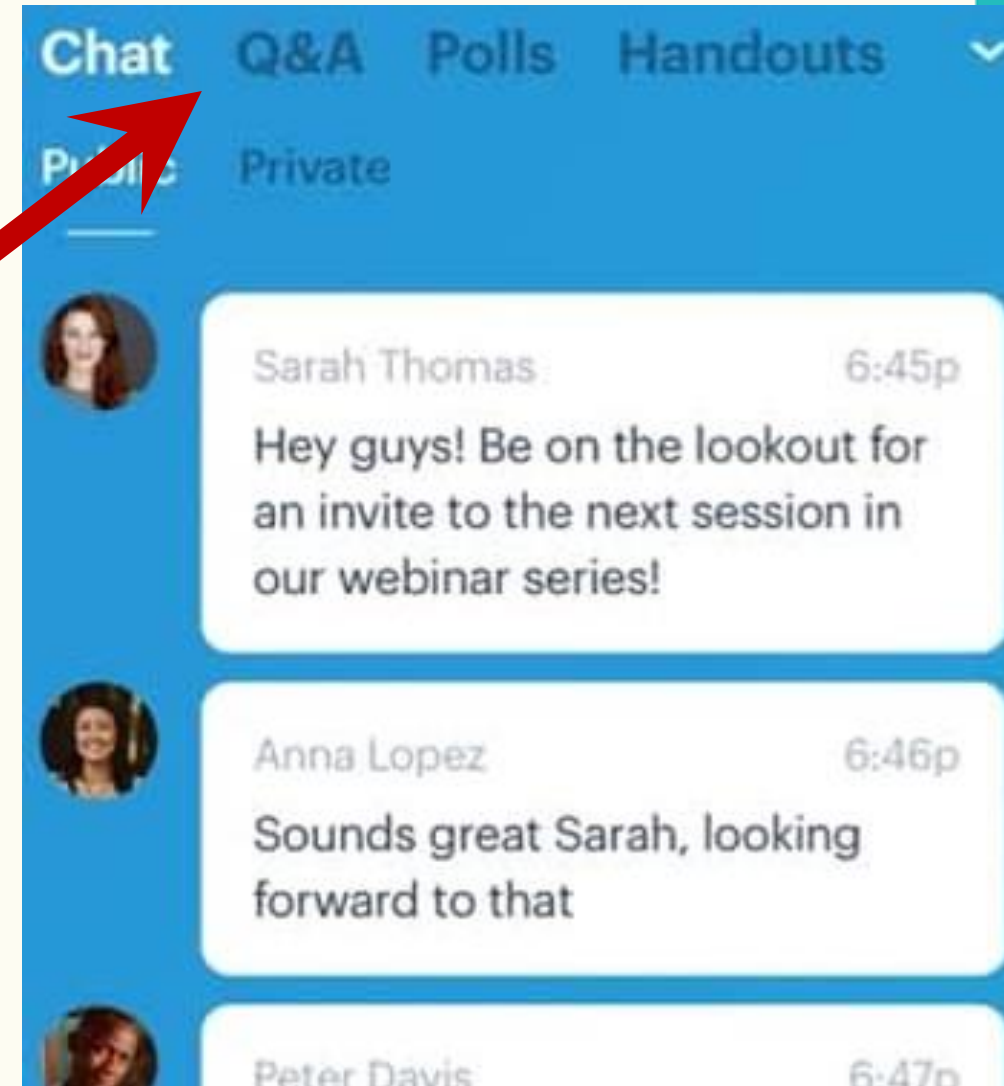


with
Tiffany Jones
& Josh Kaspar

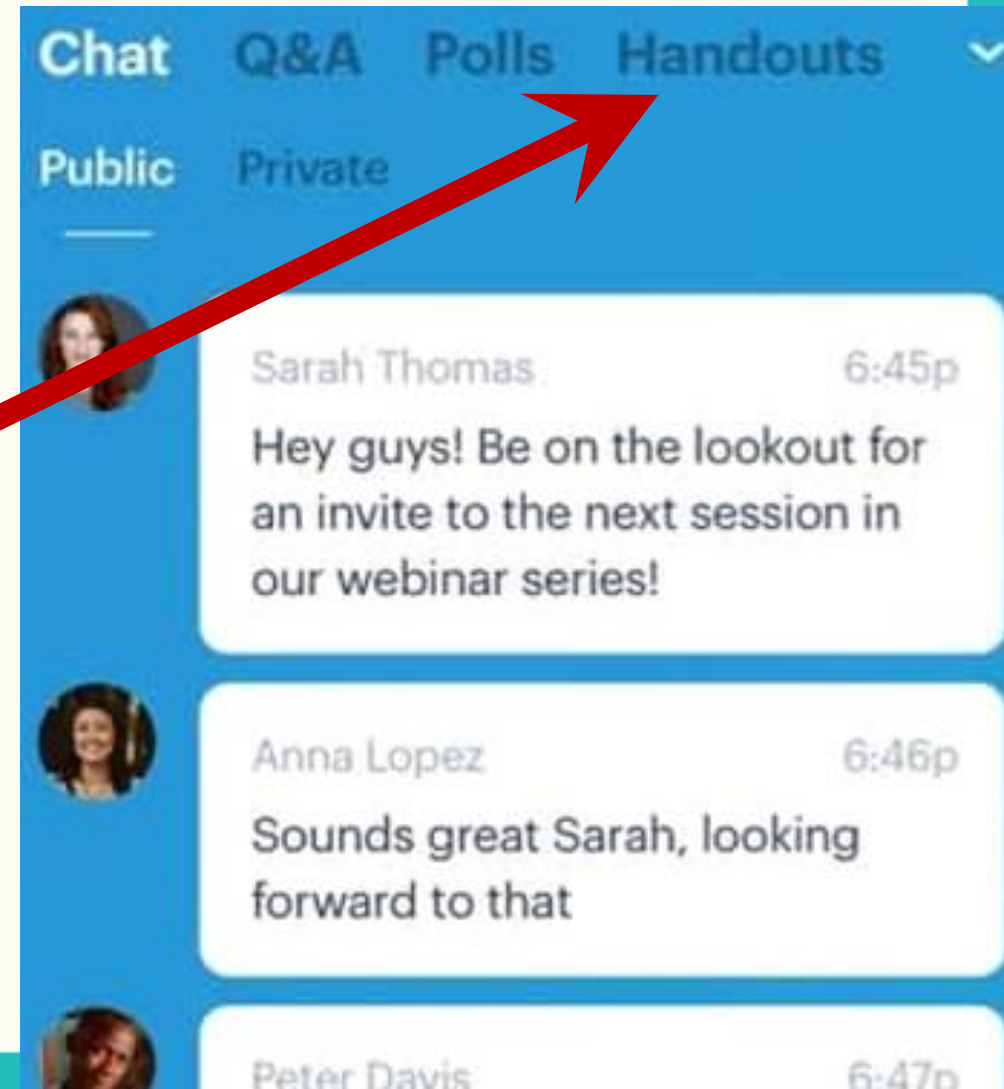
Don't be shy! Talk
to us in the **Chat**
section



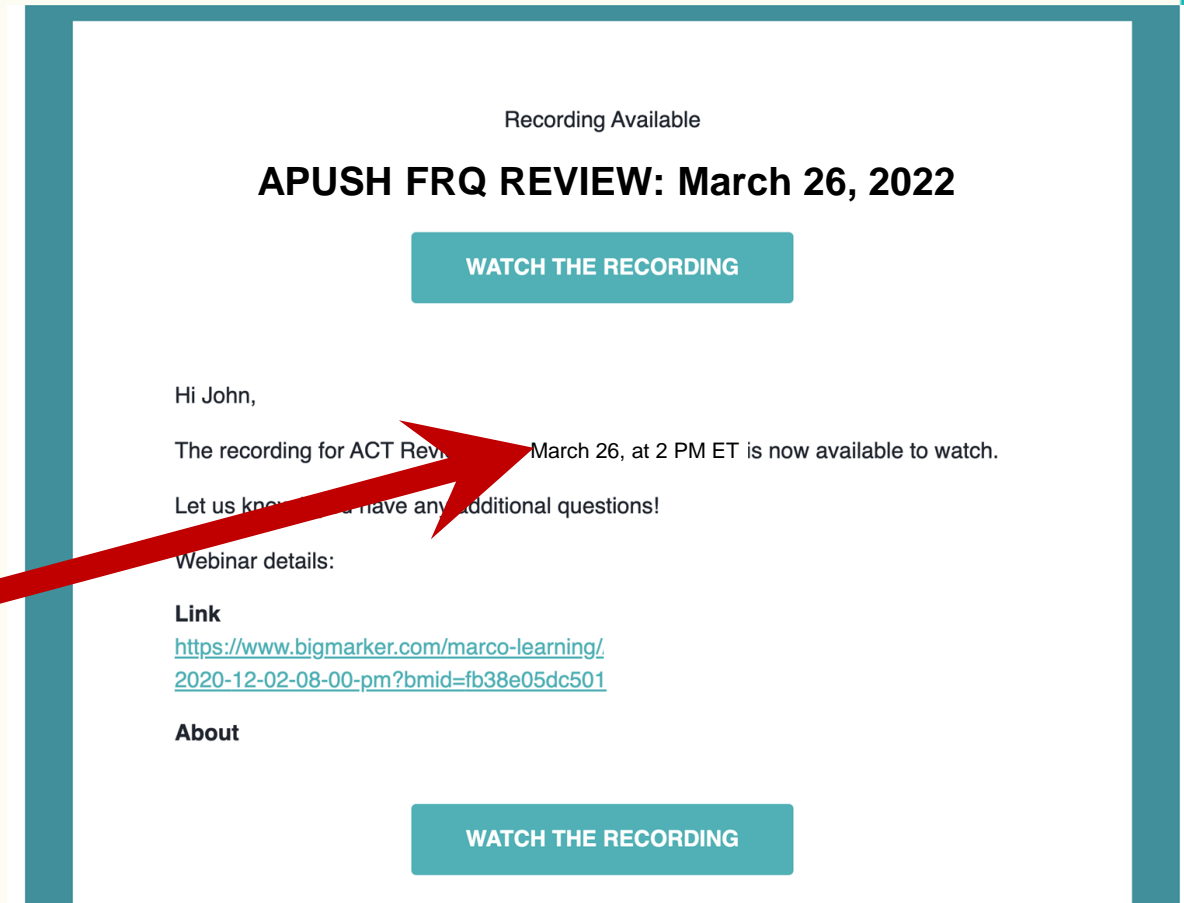
Post your questions in the **Q&A Section** and upvote your favorite questions.



Download your handouts and links in the **Handouts** tab.



All sessions
**will be
recorded** and
sent to you
via email.



Recording Available

APUSH FRQ REVIEW: March 26, 2022

[WATCH THE RECORDING](#)

Hi John,

The recording for ACT Rev. March 26, at 2 PM ET is now available to watch.

Let us know if you have any additional questions!

Webinar details:

Link
<https://www.bigmarker.com/marco-learning/2020-12-02-08-00-pm?bmid=fb38e05dc501>

About

[WATCH THE RECORDING](#)

A red arrow points from the text 'will be recorded' in the main text to the 'WATCH THE RECORDING' button in the email screenshot.

Welcome – Who Are You?

Mr. Joshua Kaspar

- 10 Years of AP Biology
- Florida
- B.A. in Science
Education – Biology
- AP teacher trainer and
mentor



Welcome – Who Are You?

Mrs. Tiffany Jones

- 11 years of AP Biology
- Georgia
- AP Reader
- B.S. in Biology
- Ed.S. in Instructional Tech



AP Biology students are
penguins because they
are Dressed for Success!

You are now an
AP Bio Penguin!



Exam Format

AP Bio Exam: May 10th at 12pm
Countdown: 45 days...

Time: 90 minutes

- Section I: Multiple Choice
- 60 Questions
- 50% of Exam Weighting

Time: 90 minutes

- Section II: Free Response
- 6 Questions (2 long, 4 short)
- 50% of Exam Weighting



Based on the 2020 Practice Exam Scoring Guidelines
You need approximately 54 of the available 120 points for
a 3 on the exam

Exam Format

Topic Breakdown

Units	Exam Weighting	#Qs
Unit 1: Chemistry of Life	8 – 11 % (5 – 7)	5.7
Unit 2: Cell Structure and Function	10 – 13% (6 – 8)	6.7
Unit 3: Cellular Energetics	12 – 18% (7 – 10)	9.3
Unit 4: Cell Communication and Cell Cycle	10 – 15% (6 – 9)	6.7

Exam Format

Topic Breakdown

Units	Exam Weighting	#Qs
Unit 5: Heredity	8 – 11% (5 – 7)	6
Unit 6: Gene Expression and Regulation	12 – 16% (7 – 10)	8
Unit 7: Natural Selection	13 – 20% (8 – 12)	9.3
Unit 8 Ecology	10 – 15% (6 – 9)	8.3

Helpful Resources:



AP Bio Penguins:

- 351 page Review Guide
- 120+ Quizizz Games
- Topic TikTok Videos
- Review PowerPoints
- Review Videos

www.apbiopenguins.weebly.com

@apbiopenguins (IG, TT, YT)

Helpful Resources:



The Absolute RecAP:

- 82 episodes (FREE) on any platform that offers podcasts
- Guided listening sheets developed with podcast

www.theabsoluterecap.com

Helpful Resources:



Bozeman
Biology

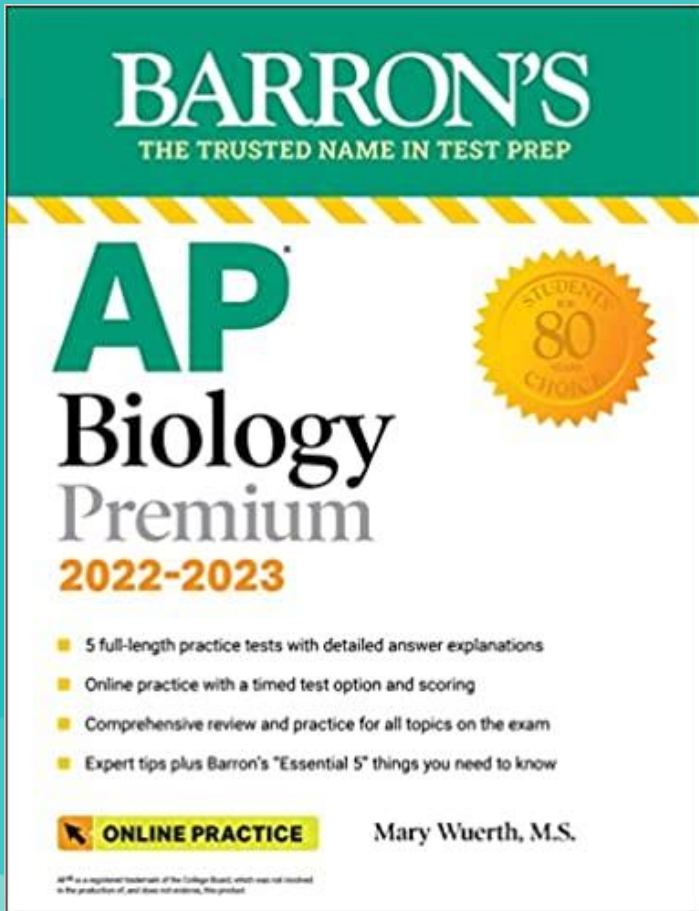


Crash
Course



Ameoba
Sisters

Helpful Resources:



Barron's Review Book:

- Section Reviews
- Section Quizzes
- Practice Exams with Explanations

Other Books:

- Princeton Review
- 5 Steps to a 5
- Pearson (Holtzclaw)

2023 AP[®] Bio 6-Week Study Plan



Quick Resources

AP Boot Camp

Score Predictor

YouTube

TikTok

Week 1 (March 26-April 1)

Units 1 and 2 (Chemistry of Life; Cell Structure and Function)

[Review FRQ Task Verbs](#)

[Units 1 and 2 Review Guide \(p. 8-55\)](#)

[A Tour of the Cell](#)

[Chemistry of Life, Cell Structure, & Function](#)

[Units 1 and 2 Quizizz Practice](#)

Attend [live event](#) Sun, March 26 for AP Bio exam prep

Week 2 (April 2-8)

Unit 3 (Cellular Energetics)

[Unit 3 Review Guide \(p. 56-87\)](#)

[ATP & Respiration](#)

[Photosynthesis](#)

[Cellular Energetics](#)

[Enzymes](#)

[Unit 3 Quizizz Practice](#)

Week 3 (April 9-15)

Units 4 and 5 (Cell Communication; Cell Cycle; Heredity)

[Units 4 and 5 Review Guide \(p. 88-148\)](#)

[Cell Communication & the Cell Cycle](#)

[Mitosis: Splitting Up is Complicated](#)

[Cell Cycle, Mitosis and Meiosis](#)

[Signal Transduction Pathways](#)

[Mendelian Genetics](#)

[Units 4 and 5 Quizizz Practice](#)

Week 4 (April 16-22)

Unit 6 (Gene Expression and Regulation)

[Unit 6 Review Guide \(p.149-197\)](#)

[DNA, Hot Pockets, & The Longest Word Ever](#)

[Gene Regulation](#)

[Examining Gene Expression and Regulation](#)

[Unit 6 Quizizz Practice](#)

Week 5 (April 23-29)

Unit 7 (Natural Selection)

[Unit 7 Review Guide \(p.198-252\)](#)

[Natural Selection: Part 1](#)

[Natural Selection: Part 2](#)

[Solving Hardy Weinberg Problems](#)

[Unit 7 Quizizz Practice](#)

[Take a practice test and score it](#)

Week 6 ^{1/2} (April 30-May 10)

Unit 8 (Ecology)

[Unit 8 Review Guide \(p. 253-315\)](#)

[Ecology - Rules for Living on Earth](#)

[Ecosystems](#)

[Ecology & Biological Mechanisms](#)

[Unit 8 Quizizz Practice](#)

[Live Events TBD](#)

AP Bio Exam
Wed, May 10th, 12 PM local

Weekly Plan

Break up the resources:

- 30 minutes to an hour a day

Example:

- Memory Monday: Read/Review
- TikTok Tuesday: Watch Review TTs/YouTube
- Quizizz Wednesday: Review Games
- Think About it Thursday: Review Guide
Weaknesses
- FRQ Friday: Practice FRQs

Tips & Tricks

MC Timing:

- Keep pace
(15 minutes for 10 questions = 1.5 minute/question)
- Use your diagrams (underline, jot notes, etc)
- Read questions before the long prompts to hone you into the important information
- If a component of the MC answer choice is wrong, mark it out
- Nothing blank

Tips & Tricks

FRQ Timing:

- Approximate:
25 min per long & 10 min per short
- Recommendation:
20 min per long & 8 min per short
- Time on Page
- Checkboxes for each bold task
- Order of Knowledge/Ability
- Watch your question number

Tips & Tricks

FRQ Format:

- TWO booklets (question book/response book)
- SPECIFIC Questions on SPECIFIC pages
- ALL answers should be on the response book
- Write in PEN (black/dark blue) – not eraseable!
- Graph in pencil (cover with pen, if time permits)
- WRITE LEGIBLY!!!
- Label your sections (a), (b), (c), & (d)
- Single line cross out
- COMPLETE sentences

Misconceptions in Biology

Unit 1: Chemistry of Life

- Relationship between H^+ ions and pH
- Bonds differ in strength & type
- Differences in macromolecules

Misconceptions in Biology

Unit 2: Cell Structure/Function

- Movement of water/tonicity
- Integration of organelles

Misconceptions in Biology

Unit 3: Cell Energetics

- ATP Synthase
- Enzyme Reactivity vs. Substrate Concentration
- NADH, NADPH, FADH₂
- Plants undergo BOTH Cell Respiration & Photosynthesis

Misconceptions in Biology

Unit 4: Cell Communication & Cell Cycle

- Nondisjunction
- Positive vs. Negative Feedback
- Ligands
- Signal Transduction

Misconceptions in Biology

Unit 5: Heredity

- Monohybrid vs. Dihybrid
- Punnett Square Probability
- Linkage vs. Independent Assortment

Misconceptions in Biology

Unit 6: Gene Expression & Regulation

- Directionality in replication, transcription, & translation

Misconceptions in Biology

Unit 7: Natural Selection

- Lamarckian Statements
- Allopatric Speciation
- Extant vs. Extinct

Misconceptions in Biology

Unit 8: Ecology

- INDEX (always subtract from 1)
- Feeding arrows in food webs/food chains

Misconceptions in Biology

Science Practices

- Null hypothesis
- DV, IV, control
- Error bars
- Types of Graphs

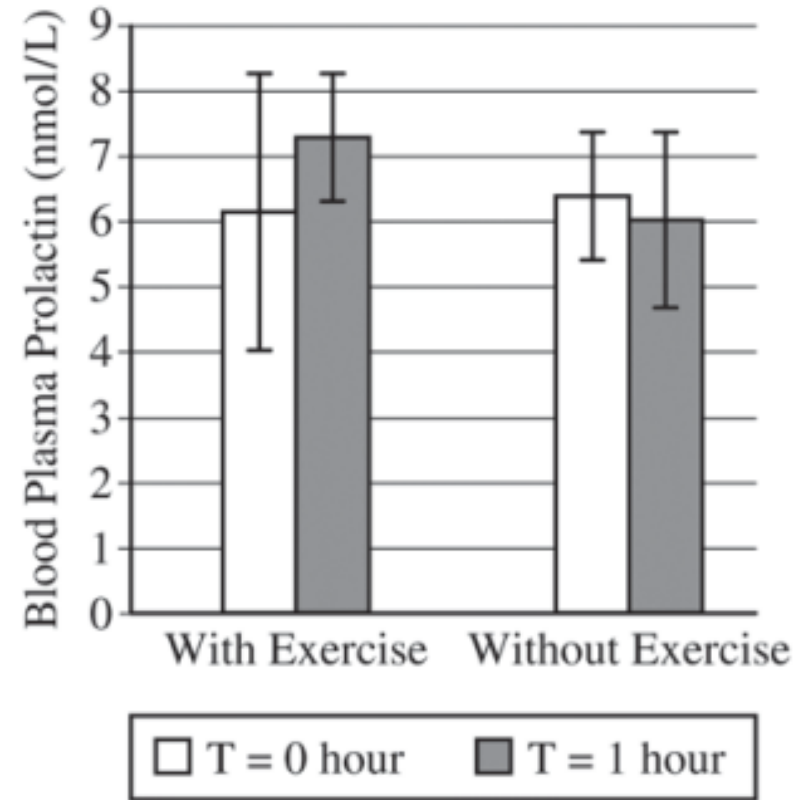


Figure 1. Effect of exercise on blood prolactin levels in adult males. The data represent the means $\pm 2SE_{\bar{x}}$.

Expect Not to Know Everything

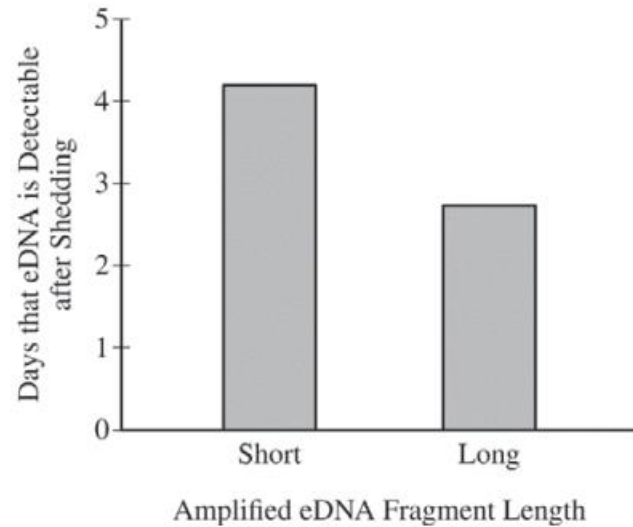


Figure 1. Detectability of eDNA fragments of varying lengths

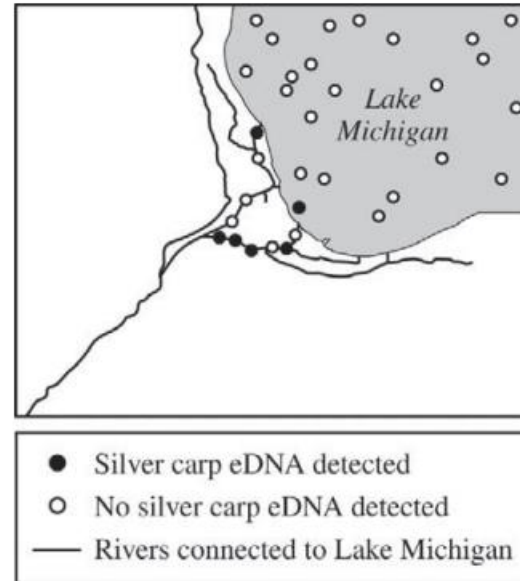


Figure 2. Map of the waterways that connect a nearby river system to Lake Michigan

Living and dead organisms continuously shed DNA fragments, known as eDNA, into the environment. To detect eDNA fragments in the environment, the polymerase chain reaction (PCR) can be used to amplify specific eDNA fragments. eDNA fragments of different lengths persist in the environment for varying amounts of time before becoming undetectable (Figure 1).

To investigate whether silver carp, an invasive fish, have moved from a nearby river system into Lake Michigan, researchers tested water samples for the presence of eDNA specific to silver carp (Figure 2).



Expect Not to Know Everything

In the tongue sole fish (*Cynoglossus semilaevis*), sex is determined by a combination of genetics and environmental temperature. Genetically male fish have two Z chromosomes (ZZ), and genetically female fish have one Z chromosome and one W chromosome (ZW). When fish are raised at 22°C, ZZ fish develop into phenotypic males and ZW fish develop into phenotypic females. However, when fish are raised at 28°C, the Z chromosome is modified (denoted as Z*). Z*W individuals develop as phenotypic males that are fertile and can pass on the Z* chromosome to their offspring even when the offspring are raised at 22°C. A cross between a ZW female and a Z*Z male is shown in the Punnett square below.

	Z	W
Z*	Z*Z	Z*W
Z	ZZ	ZW



Expect Not to Know Everything

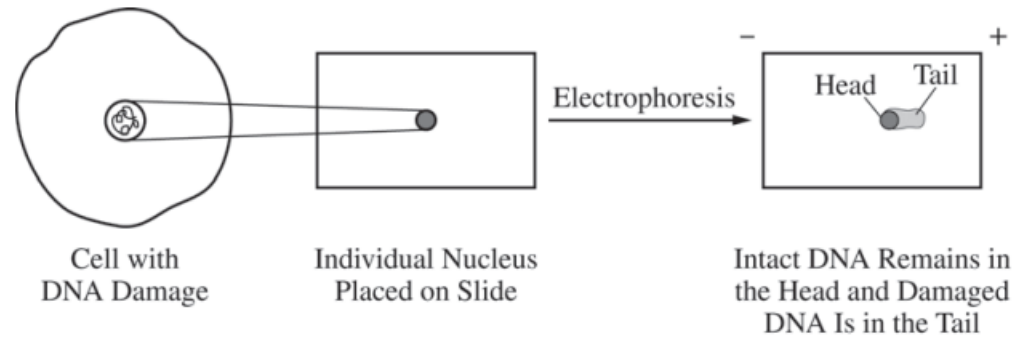


Figure 1. Comet assay to detect double-stranded breaks in DNA

A comet assay is a technique used to determine the amount of double-strand breaks in DNA (DNA damage) in cells. The nucleus of an individual cell is placed on a microscope slide coated with an agarose gel. An electric current is applied to the gel that causes DNA to move (electrophoresis), and the DNA is stained with a fluorescent dye. When viewed using a microscope, undamaged DNA from the nucleus appears as a round shape (the head), and the fragments of damaged DNA extend out from the head (the tail). The length of the tail corresponds to the amount of the damage in the DNA (see Figure 1).



AP Bootcamp Sessions

4/2: Unit 1 – 4 Review

4/16: FRQ/MC Applications

4/23: Unit 5 – 8 Review

4/30: FRQ/MC Applications

\$15

AP Bootcamp Code: Teacher15
Register with MarcoLearning



AP Review Sessions:

4/15: 2022 FRQ 1 & 2
4/29: 2022 FRQ #3 – 6

FREE on YouTube



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