

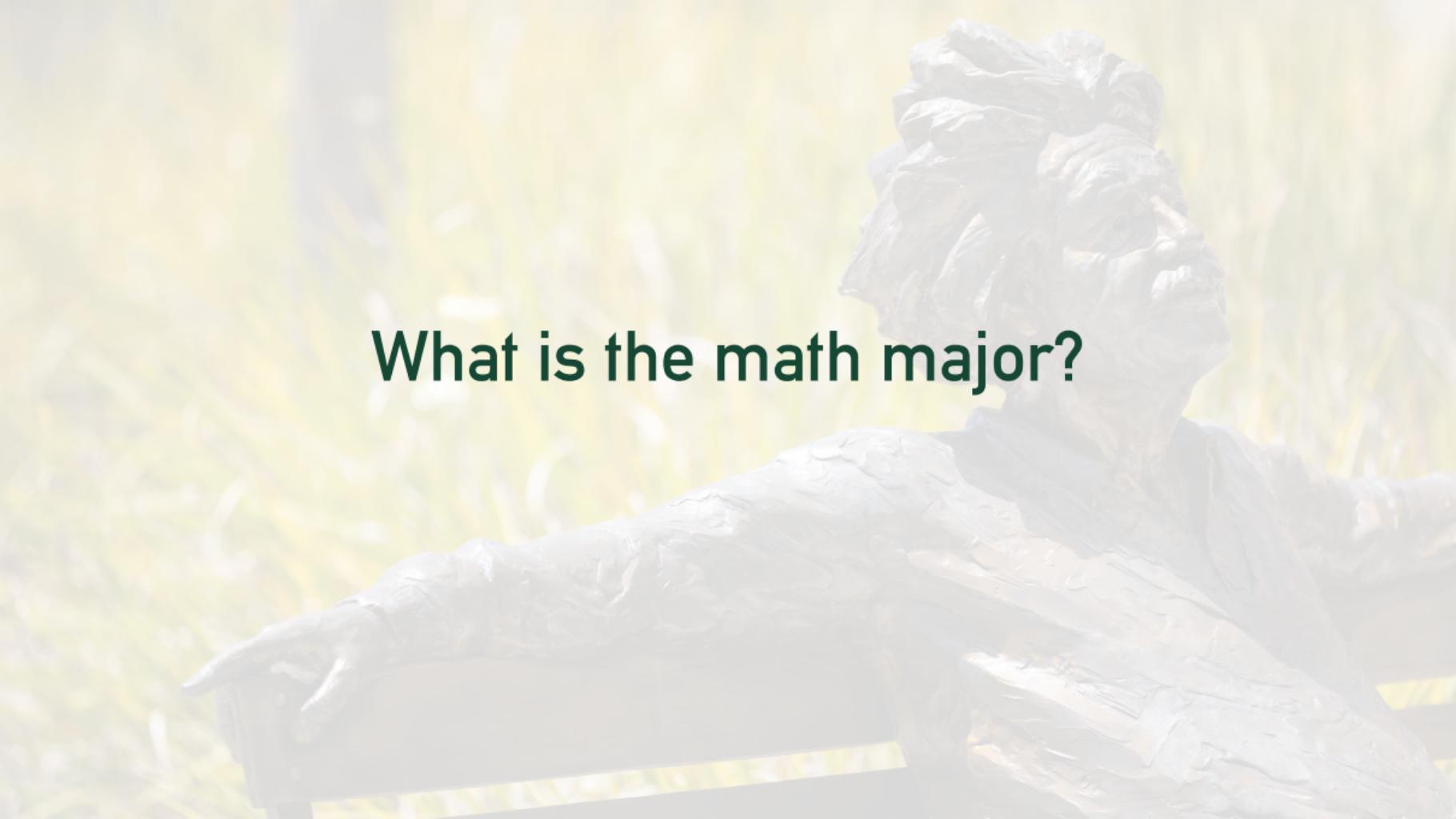
Mathematics Orientation!

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Cal Poly Mathematics Department

Who are you?

1. Why are you a mathematics major?

2. Do you have a career direction?

A large, sprawling pile of crumpled black plastic bags, possibly trash or recycling, occupies the lower half of the frame. The bags are tightly packed and layered, creating a textured, dark shape against a bright, out-of-focus background.

What is the math major?

Mathematics is not calculations!

Mathematics majors

- Explain why things are true (that is a proof!)
- Engage in abstract and creative problem solving
- Know the foundations of adjacent subjects (Phys, CS, Stats, Econ, Eng,...)

Cornerstone mathematics courses:

- Linear Algebra (Math 206/306/406)
- Real Analysis (Math 412/413/414)
- Abstract Algebra (Math 481/482/483)

We have many excellent offerings

- Differential Equations (Math 242/344/416/418)
- Combinatorics/Graph Theory/Discrete (Math 334/335/435)
- Geometry/Topology (Math 404/440/442/443)
- Numerical Analysis/Optimization (Math 451/452/453)

The major is more than coursework!

- Research/senior projects with faculty
- Funded travel to math conferences
- Competitions
- Mathematics tutoring/workshop/grading jobs
- Clubs/Math lounge/community

What is mathematics research?

Applied research models real-world phenomena, such as

- The paleoclimate
- Action potentials (signals) through cardiac tissue

“Pure” mathematics research involved proving new mathematical facts:

- How many ways can $1, 2, \dots, n$ be permuted such that “1423” is avoided?
- What is the relationship between Poncelet’s porism and elliptic curve geometry?

Math education has research projects as well.

A scenic landscape featuring rolling green hills under a clear blue sky. The foreground is filled with tall, green grass and wildflowers. In the background, more hills stretch towards the horizon under a bright sun.

Everything has Pros and Cons

Math Major Pros

- Superior logic, reasoning, and analytical abilities
- Varied career options, especially with a minor
- Interesting and intellectually challenging
- High demand for K-12 teachers, CSET waiver

Math Major Cons

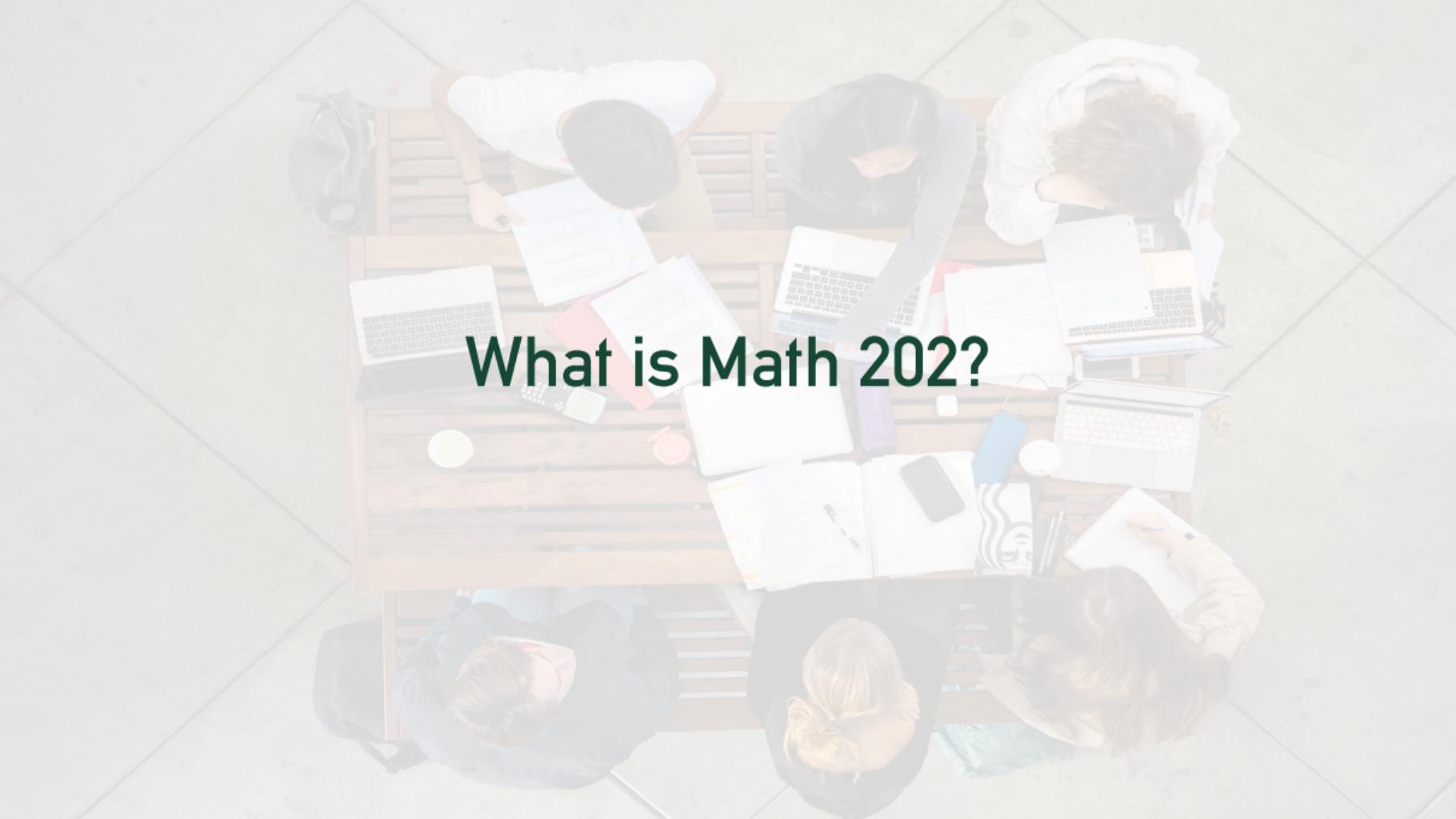
- General purpose major, not trained for anything specific
- Need to sell your abilities to earn entry level positions
- Not what some expect (abstract, proof writing)
- PhD/academic career path is extremely challenging

Cal Poly Math Major Pros

- Wide variety of courses/research opportunities
- Small class sizes/major with large, excellent faculty
- 4 + 1 program/graduate school preparation
- Department level scholarships
- Tutoring/grading/workshop job opportunities

Cal Poly Math Major Cons

- Course planning is confusing
- Some facilities are dated/not optimal
- Cal Poly/SLO can be expensive, esp. for out of state
- Not many local mathematics career opportunities



What is Math 202?

What is Math 202?

- Guest speakers will come (please talk to them!)
- Write resume and visit the job fair (sign up soon!)
- Create a valid graduation plan

What is Math 202?

Course information is on Canvas and

<https://anthonymendes.github.io/202.html>