

# Mathematics Orientation!

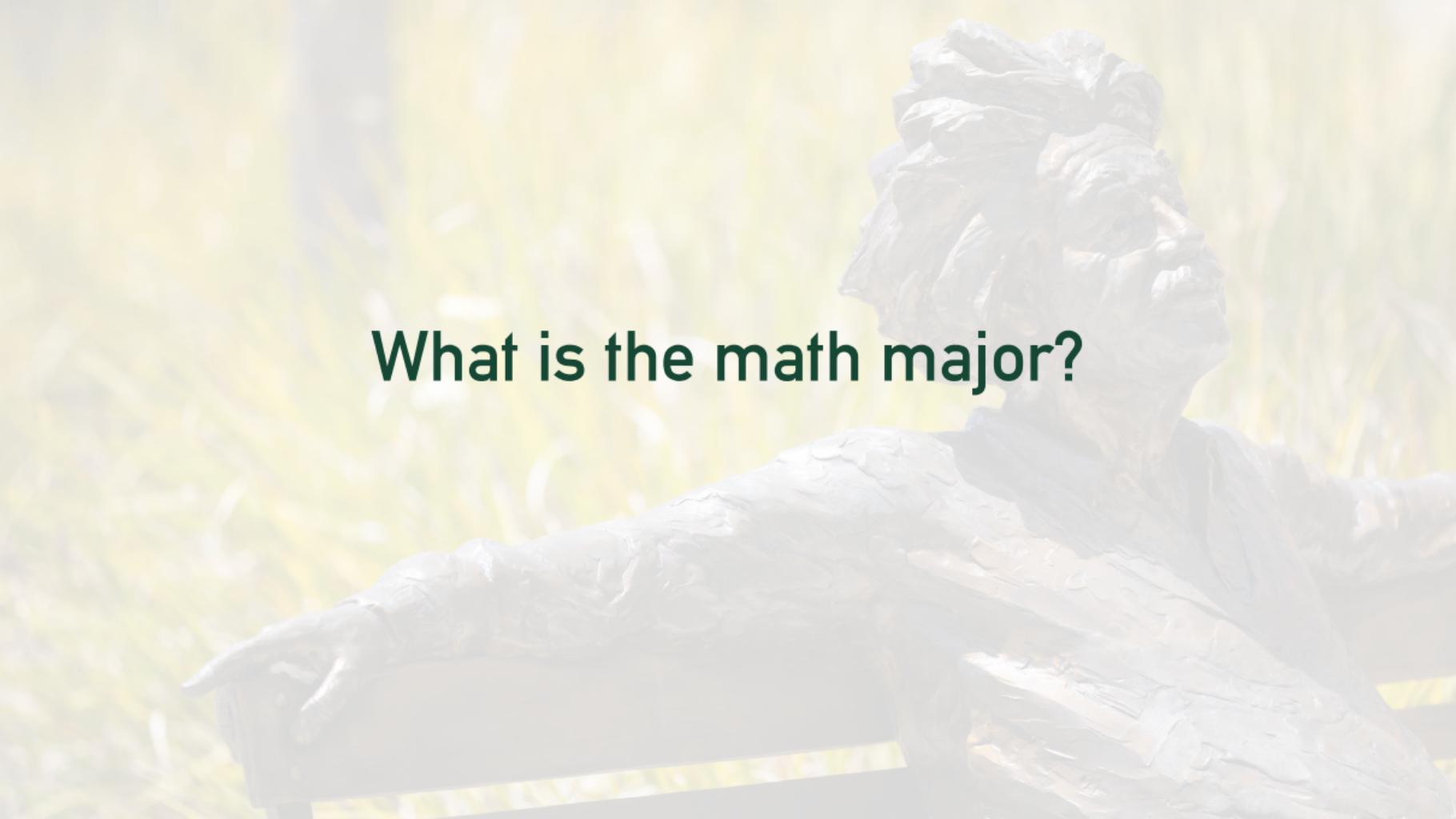
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Professor Tony Mendes  
Cal Poly Mathematics Department

## Who are you?

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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!

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Mathematics majors

- Explain why things are true (a proof is an explanation why a statement is true)
- Engage in abstract and creative problem solving
- Can apply mathematics to adjacent subjects (Phys, CS, Stats, Econ, Eng,...)

# The major is more than coursework!

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



## What is mathematics research?

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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 researches best teaching practices.

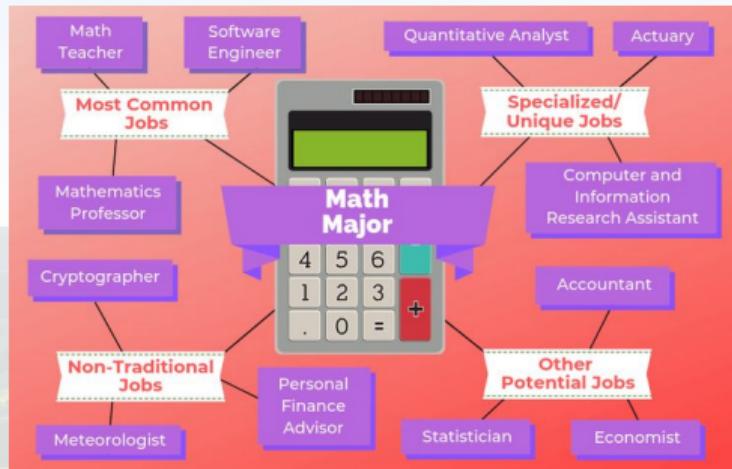
A scenic landscape featuring rolling green hills under a clear blue sky. The foreground is filled with tall, green grass and wildflowers. In the background, more hills stretch towards the horizon under a bright sun.

**Everything has Pros and Cons**

# Math Major Pros

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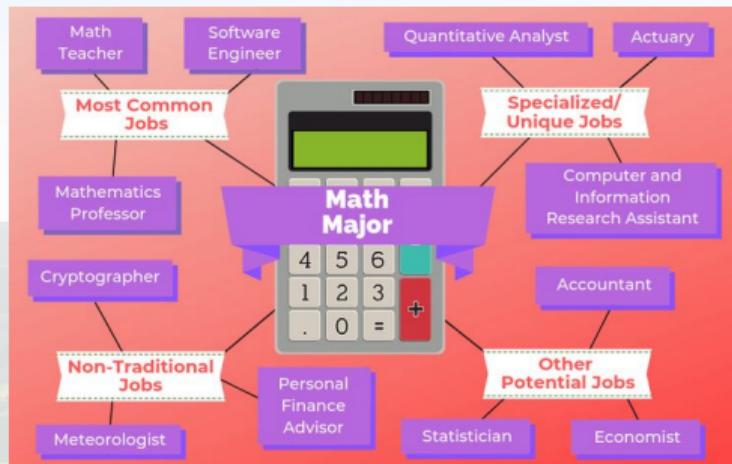
- Superior logic and reasoning
- Varied career options, many minors
- Interesting and intellectually challenging
- High demand for K-12 teachers, CSET waiver



## Math Major Cons

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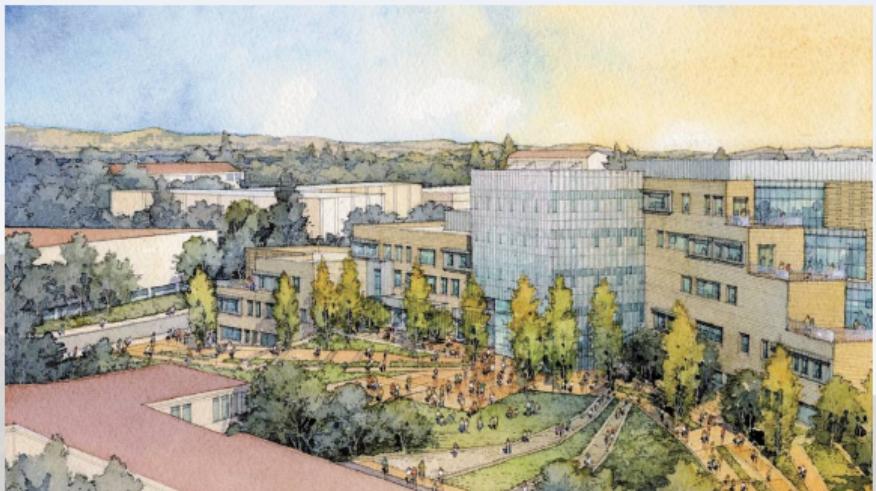
- General purpose major, not trained for anything specific
- Need to sell your abilities to get first job
- Not what some expect (abstract, proofy)
- PhD/academic career path is arduous



# Cal Poly Math Major Pros

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- Wide variety of courses
- Research opportunities
- Small classes/large dedicated faculty
- Blended Masters program
- Department level scholarships

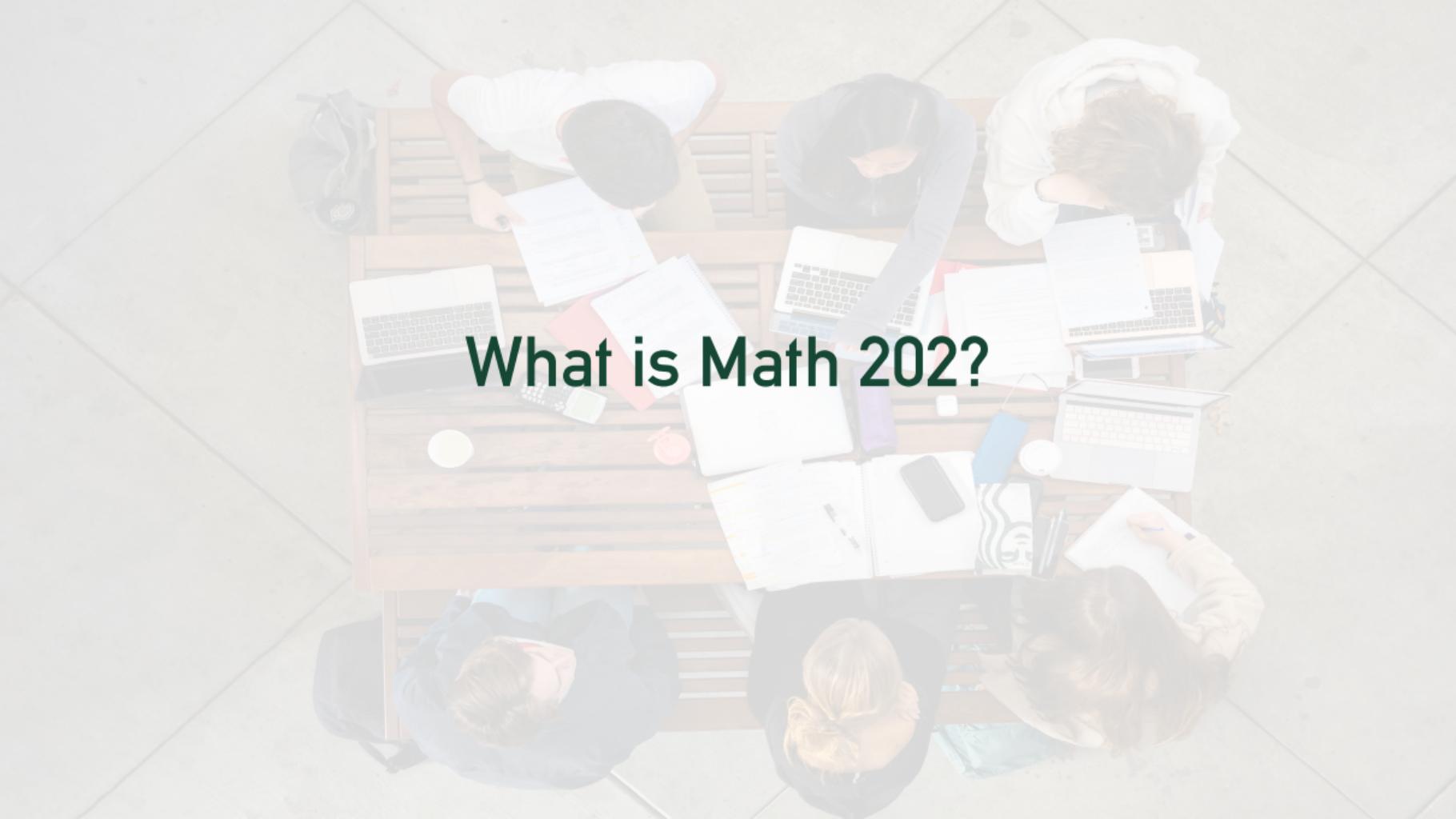


## Cal Poly Math Major Cons

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- Some facilities are dated/not optimal
- Cal Poly/SLO can be expensive
- Scant local career opportunities





# What is Math 202?

## What is Math 202?

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- Course previews/coming attractions!
- Introduction to LaTeX
- Guest speakers will come (please talk to them!)
- Write resume and visit the job fair
- Academic planning and creating a graduation plan

## What is Math 202?

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Course information is on Canvas and

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