



COMAP: An Overview of Activities & an Invitation

Catherine Roberts
Consortium for Mathematics and Its Applications

www.comap.org

Mathematical modeling experience can prepare you to navigate complex challenges facing our world.

- Communication
- Comfort with ambiguity & complexity
- Ethical grounding
- Appreciation of history, science, economics, philosophy, psychology



Wizard of Oz (1939)



COMAP's Mission

- Improve mathematics education with an emphasis on increasing student proficiency in mathematical modeling.

- We help teachers answer a perennial student question:

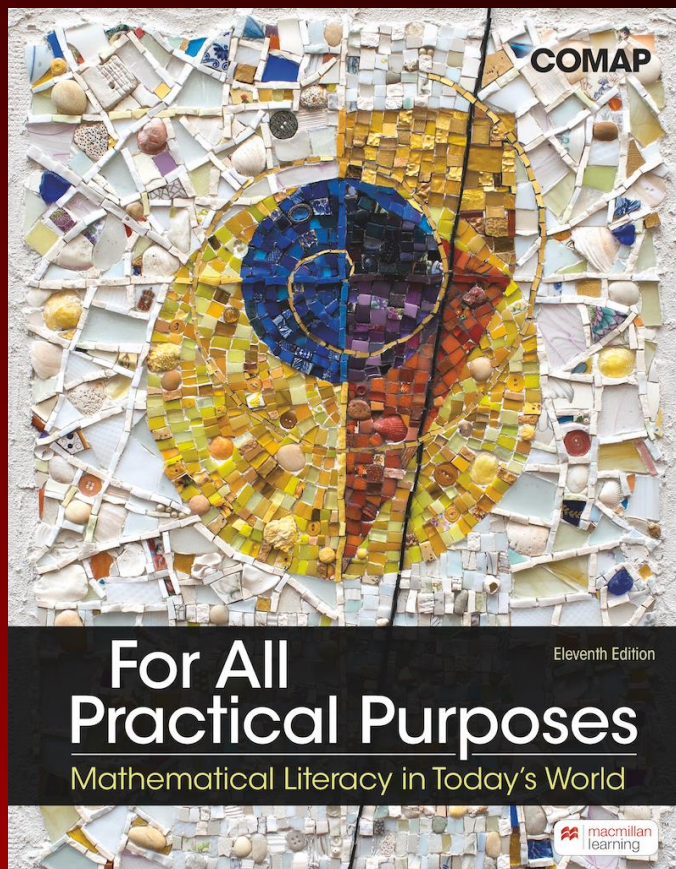
“When am I ever gonna use this?!”

- Over 40 years of experience in supporting teachers and students in enhanced mathematics teaching and learning.

Overview of Activity

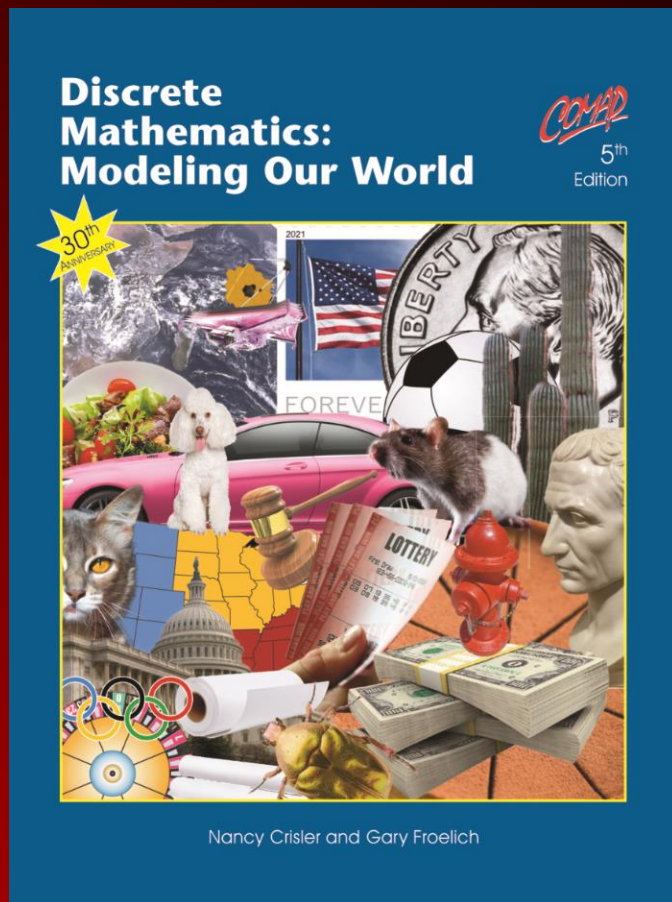
- Offer 5 international mathematical modeling contests
- Publish *Consortium* and *UMAP* journals
- Offer a large and expanding library of curricular resources
- mathmodels.org

Samples from the Library



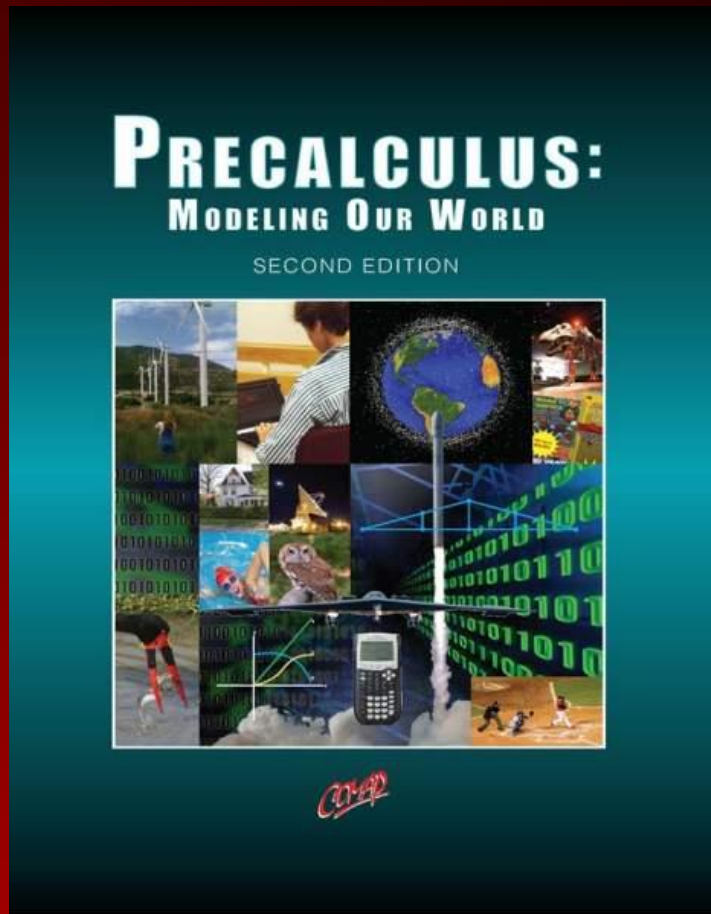
- 11th edition
- Contemporary mathematics analyzed and solved using the tools of mathematical modeling
- Created collaboratively with an extensive author team
- Macmillan Learning

Samples from the Library



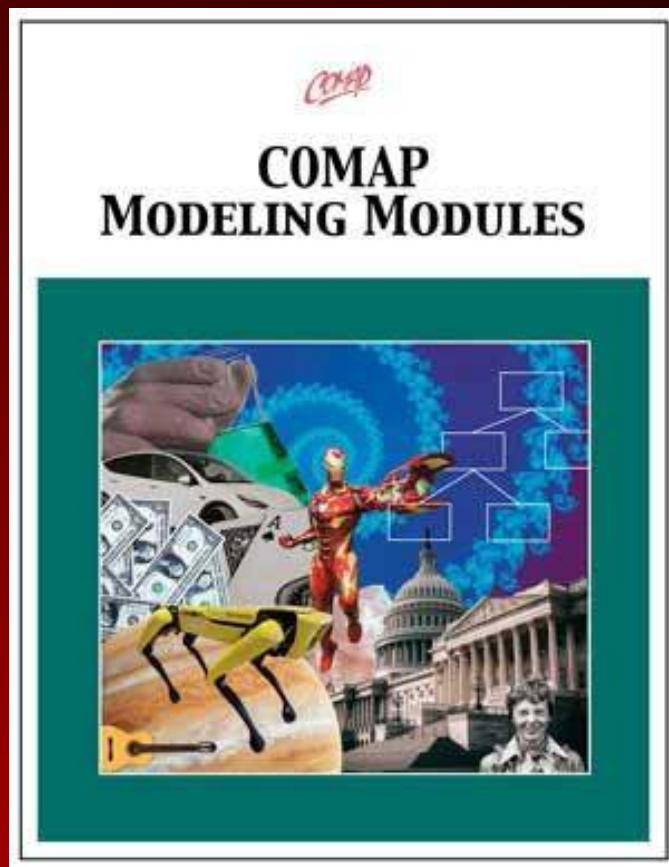
- 5th edition in 2024
- Perfect as an alternative or complement to precalculus, calculus, and statistics courses.
- Grades 11-14

Samples from the Library



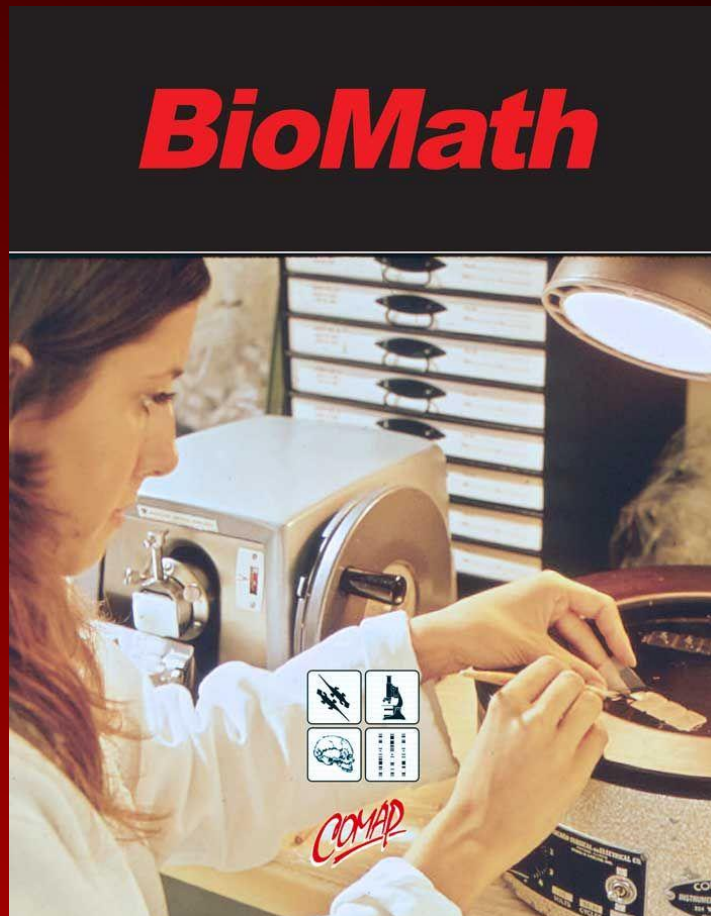
- 3^d edition in 2024
- Precalculus mathematics taught through applications and modeling

Samples from the Library



- Current Series
 - Voting methods & fairness
 - Robot paths in factories
 - Packaging design
 - Length of daylight
 - ...
- Grades 7-14

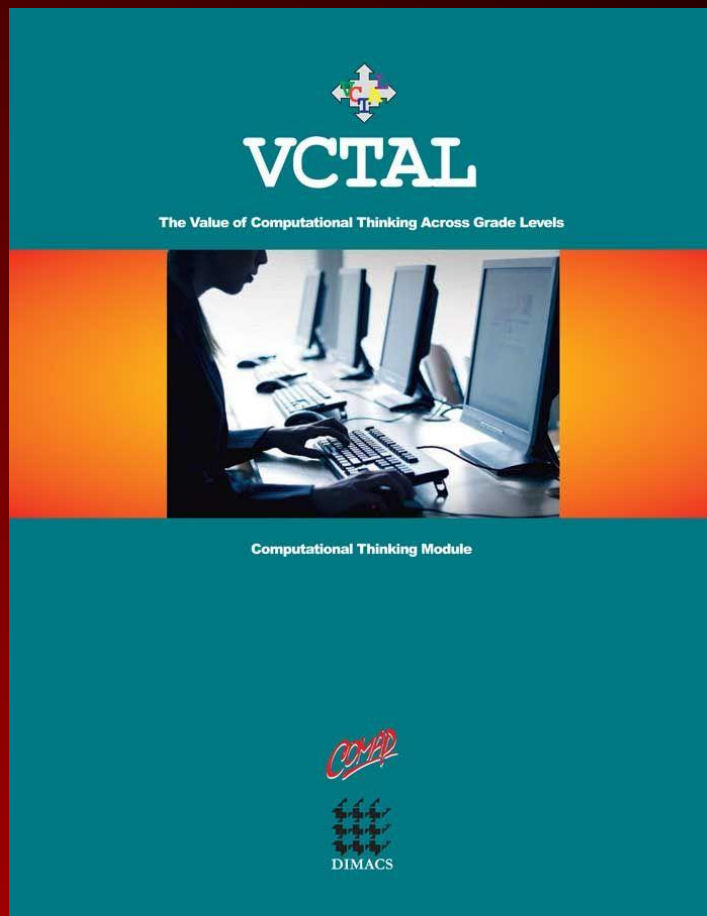
Samples from the Library



- Interdisciplinary
- Grades 9-14
- 20 Modules
- Student & Teacher Materials



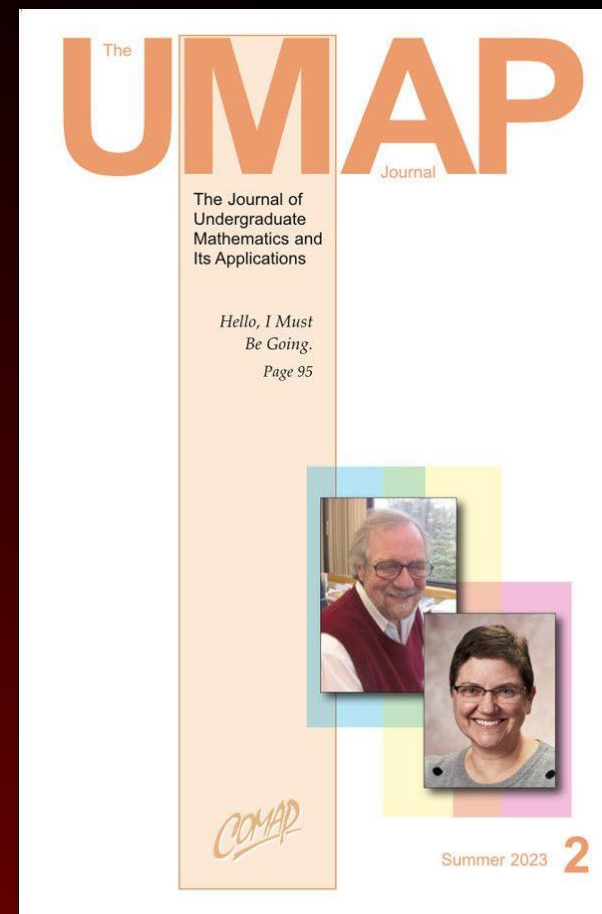
Samples from the Library



- Interdisciplinary Introduction to Computational Thinking
- Grades 9-14
- 11 Modules
- Student & Teacher Materials



Journals



Samples from the Library



- *Guide to Assessment and Instruction in Mathematical Modeling Education*
- Spanish edition available
- Written in collaboration with:



Contests

COMAP's 2023 HiMCM & MidMCM CONTEST

November 1-14, 2023

Is your team registered yet?
The registration deadline is

November 1, 2023 at 2:00 pm EST

Register today:

www.himcmcontest.com

COMAP's High School Mathematical Contest in Modeling (HiMCM) and Middle Mathematical Contest in Modeling (MidMCM) are international contests designed to provide high school and middle school level students with the opportunity to work as team members to engage and improve their modeling, problem solving, and writing skills. Contest problems are accessible using the mathematics taught at the respective levels of the contests.

Questions? Email: himcm@comap.com

Follow @COMAPMath for real-time contest info.

Contest Sponsors:

INTERNATIONAL MATHEMATICAL MODELING CHALLENGE **IM²C**



2024

February 12 – April 29, 2024

www.immchallenge.org

The International Mathematical Modeling Challenge (IM²C)[®] promotes the teaching of mathematical modeling and applications based on the firm belief that students and teachers need to experience the power of mathematics to better understand, analyze and solve real-world problems. In the spirit of promoting mathematical modeling in classrooms across the globe, the Challenge began in 2015.

COMAP's 2024 MCM[®] / ICM[®] CONTEST

February 1-5

Is your team registered yet?
The registration deadline is
February 1, 2024 at 3:00 pm ET

Register today:
www.mcmcontest.com

COMAP's Mathematical Contest in Modeling (MCM[®]) / Interdisciplinary Contest in Modeling (ICM[®]) is an international math modeling contest for undergraduate students. It is designed to provide students with an opportunity to work as a team to engage in and improve their modeling, problem solving, and writing skills.

Questions? Email: mcm@comap.com
 Follow @COMAPMath for real-time contest info.

Contest Sponsors:



M₃ MathWorks Math
Modeling Challenge
A program of **siam**

Contests in Mathematical Modeling

- MidMCM students up to 14.5 years of age
- HiMCM students up through high school seniors
- MCM/ICM undergraduate students and below
- IMMC high school teams selected by country

MidMCM

- Teams of 4 students
- 14 days in November
- Select one of two problems
- 70 teams in just its 2nd year
- \$100 fee per team

HiMCM

- Teams of 4 students
- 14 days in November
- Select one of two problems
- Since 1999
- Over 900 teams in 2023
- \$100 fee per team
- Scholarships and other prizes

MCM / ICM

- Teams of up to 3 students
 - Undergraduate or lower
 - Work done over 4 days in early February
 - \$100 fee per team
-
- ***Mathematical Contest in Modeling***
 - 20,000 teams worldwide
 - Choice of 3 Problems:
 - Continuous
 - Discrete
 - Data
- ***Interdisciplinary Contest in Modeling***
 - 10,000 teams worldwide
 - Choice of 3 Problems:
 - Operations Research
 - Environmental Science
 - Policy

Contest Myths

- You have to be an A+ math student to do well.
 - False!
 - Excellent models can be created at a variety of levels of mathematical sophistication.
 - In fact, sometimes simpler models are preferable to advanced but unwieldy models.
- You have to love math to do well.
 - False!
 - These contests are *team* contests, sometimes a math “geek” needs a clear communicator as a partner, along with someone who is a good leader.
 - Collaboration of students with diverse skills sets is the key – just like in the real world!
- The problems are too hard.
 - False!
 - Hard, maybe, but more than anything they are engaging and valuable.
 - The Problem Authors craft problems than can be approached in a variety of ways.

Contest Benefits: students & advisors

- Practice and develop problem-solving, collaboration, and communication skills.
- Immerse yourself in a realistic problem of current relevance outside the classroom.
- Gain insight into the problems confronting professionals.
- Distinguish yourself in college and job applications.
- Promote the value of mathematics outside the school setting.
- Foster curiosity and engagement in mathematics across a diverse range of students.
- Discover and partner with students and colleagues with hidden interests and skills.
- Mentor students in professionalism.



2021 Best Jobs :

work environment, income, outlook, ~~stress~~

- #1 Data Scientist
- #2 Genetic Counselor
- #3 Statistician
- #4 Medical Services Manager
- #5 Mathematician
- #6 University Professor
- #7 Operations Research Analyst
- #8 Information Security Analyst
- #9 Actuary
- #10 Software Engineer

www.careercast.com

An Invitation

- Join comap.org (free option for educators and students)
- Join mathmodels.org (\$30/year)
- Become a Team Advisor for our Competitions
- Become a Triage Judge for our Competitions
- Submit a paper to *Consortium* or *UMAP Journal*
- Help us write & create new curricular materials