COMAP

2015 MCM/ICM® Call for Entries

KEEP RIGHT EXCEPT TO PASS

The MCM and ICM Contests are Sponsored by:

- The Institute for Operations Research and the Management Sciences
- The Society for Industrial and Applied Mathematics
- The Mathematical Association of America
- The Department of Defense Analysis, Naval Postgraduate School
- Chinese Society for Industrial and Applied Mathematics
- Two Sigma Investments:

  A group of experienced, analytical, and technical financial professionals based in SoHo, New York, building and operating sophisticated quantitative trading strategies for domestic and international markets. The firm is successfully managing several billion dollars using highly automated trading technologies. For more information about Two Sigma, please visit our Website at www.twosigma.com.

ICM®

Dear Colleagues:

The Interdisciplinary Contest in Modeling (ICM), an international contest for high school students and college undergraduates, will hold its 17th annual competition in February 2015. Last year, 1028 teams from 228 institutions in three countries participated in the contest. ICM is designed to develop and advance interdisciplinary problem-solving skills as well as competence in written communication. This year there will be two ICM problems to select from: one will focus on network science and the second on environmental science. You can specifically build and prepare your team to tackle one of these topics, if you so chose.

Your institution may take part in the ICM effort by encouraging a member of your department to serve as a faculty advisor and by promoting the participation of faculty and students from associated departments. Advisors help organize the teams, distribute contest materials, and return solution papers to COMAP.

Please take a moment to read this Contest Overview, then go to www.mcmcontest.com for more information about registration, deadlines, and contest rules. All registration will take place online. If you have any questions please contact icm@comap.com.

We hope that you and your team(s) will enjoy this modeling challenge.

Best Wishes,

Chris Arney, Contest Director

Contest Director
Chris Arney
U. S. Military Academy, NY

Joseph Myers
U. S. Army Research Office, NC

Executive Director
Solomon A. Garfunkel
COMAP, Inc., MA

Associate Director
Tina Hartley
U. S. Military Academy, NY

MCM®

Dear Colleagues:

The Mathematical Contest in Modeling (MCM), a unique international contest for high school students and college undergraduates, will hold its 31st annual competition in February 2015. Last year, 6755 teams from 855 institutions in eighteen countries participated in the contest. The MCM is designed to stimulate and improve problem-solving and writing skills in mathematics. Students participate as team members rather than as individuals, creating an environment for sharing knowledge and skills. Your institution may take part in the MCM effort by encouraging a member of your department to serve as a faculty advisor and by promoting the participation of faculty and students from associated departments. Advisors help organize the teams, distribute contest materials, and return solution papers to COMAP.

Please take a moment to read this Contest Overview and then go to www.mcmcontest.com for more information about registration, deadlines, and contest rules. All registration will take place online. If you have any questions please contact mcm@comap.com.

We hope that you and your team take pleasure in this intellectual challenge and enjoy the spirit of this competition.

Best Wishes,

William P. Fox, Contest Director

Contest Director
William P. Fox
Naval Postgraduate School, CA

Executive Director
Solomon A. Garfunkel
COMAP, Inc., MA

Founding Director
Ben Fusaro
Florida State University, FL

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Salisbury University, MD

Frank R. Giordano
Naval Postgraduate School, CA

Contest Overview

MCM and ICM are parallel contests and follow the same rules.
All the information listed below, except where noted, pertains to both contests.

The Ground Rules

Contest Date and Time: The 2015 contests must be accomplished at a local facility starting at 8:01 PM EST on Thursday, February 5, 2015 and ending at 8:00 PM EST on Monday, February 9, 2015.

Each team is required to submit an electronic copy of its solution paper by email to solutions@comap.com. The advisor or any team member may submit this email.

Your email MUST be received at COMAP by the submission deadline of 8:00 PM EST on February 5, 2015.

Faculty advisors must ensure that no further modifications, enhancements, additions, or improvements may be made to the team's solution paper after this email submission.

COMAP must then receive your Printed Solution Packet via mail on or before **Wednesday, February 18, 2015.**

The Contest Materials: The contest Website contains all the guidelines, requirements, judging criteria, and suggested procedures for the submission of solution papers, including step-by-step instructions.

No materials will be available in any other form.

On Thursday, February 5, 2015 at 8:00 PM EST, the contest problems will be posted on the contest Website.

The Advisors: Advisors inform students about this competition and encourage the formulation of teams.

Advisors may guide and rehearse the team prior to the beginning of the competition.

During the competition, the students are expected to develop all of the substantive analysis without the help of others.

Registration of Teams: All teams must register online on or before February 5, 2015 at 2:00 PM EST.

> **A $100 registration fee must be paid at registration online in order to participate.**

The MCM and ICM contests now allow **unlimited** teams per institution, with **unlimited** teams per department.

Each team consists of up to three high school or undergraduate students who are enrolled in school at the time of the contest.

Team members do not need to be named at the time of registration, but they must be determined before the contest problems are read.

The Contest Problems: Teams will choose one of four modeling problems:

> MCM Problem A (continuous)
> MCM Problem B (discrete)
> ICM Problem C (network science)
> ICM Problem D (environmental science)

Data, if needed, will be attached to the problem or available on the contest Website.

Sample problems from other years are online at www.mcmcontest.com

The Report: Participants may use all the resources available such as computers, libraries, software packages, Internet, or any other inanimate sources.

Problems are designed to be open-ended and are unlikely to have a unique solution.

Attention must be focused on clarity, analysis, and design of the solution.

The narrative section of the solution papers must be typed and in English. Partial solutions are acceptable.

One print copy of each paper must be submitted.

Results: Judging will be completed by April 2015.

Team solutions will be designated as Successful Participant, Honorable Mention, Meritorious, Finalist, or Outstanding.

The results will be posted on COMAP's Website.

Certificates and press releases will be mailed or emailed by May 2015.

Select outstanding teams will have their solution papers published in *The UMAP Journal.*

Prizes: 2σ TWO SIGMA will sponsor a $10,000 Scholarship Award to the two best USA teams in the competition.

The Institute for Operations Research and the Management Sciences (INFORMS) will designate an Outstanding Team from each of the four problems as an INFORMS winner.

The Society for Industrial and Applied Mathematics (SIAM) will designate one Outstanding Team from each problem as a SIAM winner.

The Mathematical Association of America (MAA) will designate one Outstanding Team from each problem for the MCM as a MAA winner.

For detailed information on all of the above, please go to the contest Website at: www.mcmcontest.com

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Recent ICM Contest Outstanding Teams

Central University of Finance and Economics, China
National University of Defense Technology, China
Southeast University, China
Tsinghua University, China (2)
Xidian University, China

Recent MCM Contest Outstanding Teams

Beijing Normal University, China
Chongqing University, China
College of Information Science and Engineering, Northeastern University, China
Huazhong University of Science and Technology, China
Nanjing University, China
NC School of Science and Mathematics, Durham, NC
Shanghai Jiaotong University, China
Southeast University, China
Southwest University for Nationalities, China
Tsinghua University, China
Tufts University, Medford, MA
University of International Business and Economics, China
Zhejiang University, China