



Student Challenge Using Differential Equations Modeling

SUMMARY REPORT for SCUDEM X 2025

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Overview and Problems Offered

Support from MathWorks <https://www.mathworks.com/> through grant funding and FREE student access to MathWorks software is much appreciated.

SCUDEM X 2025 is an international student team challenge in which teams of three students from high schools and undergraduate programs select one of three problems and produce a mathematical model using differential equations. They then prepare a ten-minute video and post it Unlisted in YouTube for judges to view and then score and render constructive comments.

The three problems for SCUDEM X 2025 can be found here:

https://www.contest.comap.com/scudem/2025_Problems/SCUDEM_X_2025_Problems.pdf.

These three problems are in the general area of (A); Chemistry/Life Sciences; (B) Physics/Engineering; and (C) Social Sciences/Humanities. We give the title of each problem.

- Problem A: It Is Raining Space Dust
- Problem B: An AI Ouroboros
- Problem C: Birds of Different Feathers

Problems were released on 18 October 2025 and team videos were due on 11 November 2025, while judging was completed by 10 December 2025.

Judges were asked to use a Scoring Rubric found at this website

https://www.contest.comap.com/scudem/flyers/SCUDEM_Scoring_Rubric.pdf and to add constructive comments for each team.

Summary Statistics

442 students participated, forming **155** three student (or less) teams, with **87** coaches. In some cases coaches worked with multiple teams. Several teams did not have coaches. **139** teams submitted a final ten-minute video for judging.

204 volunteer faculty and industry personnel served as judges rendering scores and comments for a great deal of feedback through which students will grow with respect to their modeling abilities.

Recent SCUDEM events have had students, coaches, and judges engage from the following countries and regions: Albania, Algeria, Australia, Azerbaijan, Bangladesh, Belgium, Benin, Bolivia, Bosnia and Herzegovina, Brazil, Canada, Chile, China, Columbia, Egypt, France, Germany, Ghana, Guyana, Hungary, India, Indonesia, Iran, Iraq, Ireland, Italy, Japan, Jordan, Kenya, Kuwait, Macao, Malaysia, Mauritius, Mexico, Morocco, Nepal, Netherlands, New Guinea, New Zealand, Nigeria, Norway, Oman, Pakistan, Panama, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia, South Africa, Spain, Sri Lanka, Taiwan, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Viet Nam, Virgin Islands, Zimbabwe.

Awards Information for SCUDEM X 2025

Overall the following awards, with numbers of teams and percentage of each level were:

Award Level	Number	Percent
Outstanding	41	29.5 %
Meritorious	63	45.3 %
Successful	35	25.2 %
Totals	139	100 %

The breakouts of problem selection and awards for each problem were:

Problem A Summary	52 Submissions
Outstanding	18
Meritorious	22
Successful	12

Problem B Summary	52 Submissions
Outstanding	15
Meritorious	24
Successful	13

Problem C Summary	35 Submissions
Outstanding	8
Meritorious	17
Successful	10

Announcement of Awards

SIMIODE publicly announces only the Outstanding Team Awards and will formally invite these teams to post their team video at the [SIMIODE's YouTube Channel](#). SCUDEM X 2025's Outstanding Team Award videos will be posted there in January 2026.

All teams will receive a Press Release form for use in getting out the word of their engagement.

SCUDEM IX 2024's Outstanding Team Award videos are available at [SIMIODE's YouTube Channel](#) along with the Outstanding Team Award videos from previous SCUDEM events.

All teams and their coaches are provided with award information (Outstanding, Meritorious, and Successful), including all anonymous judges scores, average score, and complete set of judges' comments, as well as certificates for awards and participation. All coaches and judges are given certificates of appreciation.

We thank all for making SCUDEM X 2025 a successful and meaningful event for students.