

## SCUDEM III 2018

### SIMIODE Challenge Using Differential Equation Modeling

### Local Site Host Coordinator Guide Book

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Throughout this document the following abbreviations are used:

- (SL) – SIMIODE leadership
- (ST) – SIMIODE Technical Staff
- (HC) – Local Site Host Coordinator
- (SA) – SCUDEM Assistant
- (ST) – Student Teams
- (LG) – Local Site Host Coordinator Group



## OVERVIEW

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All information, announcements, and forms for SCUDEM III 2018 are available to Registered Host Coordinators (HC) at the [Local Site Host Coordinators Group \(LG\)](#).

### Purpose

The purpose of SCUDEM III 2018 is two-fold.

- (1) Provide student teams of three challengers an opportunity to use differential equations in a modeling setting, to meet other students interested in the same activities, and to participate in a fun MathBowl.
- (2) Provide team Coaches and other faculty an opportunity to experience modeling using differential equations, see SIMIODE as a rich set of resources for teaching materials, network with like-minded faculty, and share in the joy of students applying mathematics.

### Team Composition

- (1) All teams must have a faculty coach (could be graduate student or faculty or administrative staff).
- (2) Teams of two are acceptable, but three is best for students and learning.
- (3) Student challengers must be enrolled in high school or be an undergraduate student.

### Role of Coach

Coaches will promote the challenge; invite, encourage, select, and team up groups of students; prepare students on overall modeling efforts, perhaps by referring to previous year's SCUDEM write-up by problem poser and examining student submissions or doing the same through other competitions, e.g., COMAP's Mathematical Modeling Contest; perform logistics of getting to local site (or being part of the local site effort at their school); after the challenge debrief students on their experience, perhaps having them give a presentation about their model and their experience to department or math club activity shortly after SCUDEM; and receive and distribute certificate awards. Coaches are NOT to engage students in discussions or assist student teams in any way during the challenge period, 19 – 27 October 2018.

### Coach Resources:

- (1) COMAP-SIAM. 2016. GAIMME: Guidelines for Assessment and Instruction in Mathematical Modeling Education. Free and available at [www.comap.com/Free/GAIMME/](http://www.comap.com/Free/GAIMME/).
- (2) Math Modeling: Getting Started and Getting Solutions. 2017. SIAM Modeling Handbooks and videos. <https://m3challenge.siam.org/resources/modeling-handbook>.

### Setting

On 19 October 2018 at one minute after midnight SIMIODE will post three modeling problems and student teams will then select one on which to work. On Challenge Saturday, 27 October 2018, teams (along with their faculty Coach) assemble at a local site for a day long set of activities with a two page Executive Summary + 1 page for references and material for a 10 minute Presentation on the model of their choice.

Ten paper copies of the Executive Summary are to be turned in at Registration. When presented with an additional issue at 9:00 AM Local Time the teams are to address that issue in their Presentations only. The teams

are NOT to rework their model, but rather indicate how they might incorporate the issue and what they believe should happen to their model. The time allotted to address the additional issue is an hour and half.

### **Structure**

Coaches are to register their team during the registration period, 1 August 2018 – 6 October 2018, and both Coach and individual Team members need to register in SIMIODE community at [www.simiode.org/register](http://www.simiode.org/register). Coaches and Team members will be placed in groups within the SIMIODE community for communication purposes.

SCUDEM III 2018 involves a week of modeling activity at home institutions for student teams and a one day Challenge Saturday, 27 October 2018, at a local host site of their choice (using first, second, and third choices of sites) from a list provided on-line by SIMIODE.

On Challenge Saturday, 27 October 2018, teams take time (1.5 hours) during the morning to incorporate an additional issue into their model for Presentation while faculty judge the Executive Summaries from participating teams. Later in the morning both faculty and students participate in the development program which engages them in live modeling scenarios to experience the joy of modeling and form the basis of discussions about the value of modeling in learning and teaching differential equations. After lunch individual student challengers participate in a fun MathBowl lead by SCUDEM Assistant (SA) while faculty share in a more teacher focused Faculty Development workshop. At 2:00 PM teams present their models for judging. Additional local and visiting faculty and students may wish to engage here, both as audience members and judges. Student will not be judges and faculty must recuse themselves from judging their own team. The day wraps up with closing ceremony and announcement of awards.

### **Financial Arrangements**

All teams have a \$100 US Registration Fee to cover Faculty Development participation and each team entry. Registration fees must be paid through SIMIODE's PayPal portal which will be open and dedicated to registration issues from 1 August 2018 – 6 October 2018. We are extending free registrations to schools in developing countries as an outreach mission of SIMIODE.

Host sites receive a stipend of half the visiting registration fees of teams at their site, including ALL of their own local site team registration fees, when the challenge is held at that local site. In the event of consolidation of sites, the original host site full fees will be applied to the consolidating host site. However, in the event the local site decides to "stay at home" and do SCUDEM III 2018 locally then half their registration fee will be returned to them. Due to the rich mix of interested faculty and students, larger gatherings are encouraged over smaller or singleton events.

### **Support**

For a successful SCUDEM III 2018 Challenge Saturday to occur there needs to be preparation, both locally and at the SIMIODE level. In this document we specify the local actions necessary for success and indicate the support given by SIMIODE.

### **Keeping Host Coordinators Informed on Number of Visiting Teams**

Beginning on 1 August 2018 and every week thereafter we shall post a spreadsheet in the SCUDEM III 2018 Local Site Host Coordinator Group at <https://www.simiode.org/groups/scudemiii2018localsite> under Files. In this file we will list visiting teams who have registered for SCUDEM III 2018 by host school with the following information on the visiting teams: school name, city, state, country, coach name, and coach email. In this way local site host coordinators will be made aware of the number of visiting teams coming to their schools along with contact information for each visiting team's faculty coach.

A reasonable number of teams at a local site would be 12 (11 visiting and 1 home team), but this will vary.

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## Local Site Host Coordinator Responsibilities

- Secure rooms for meeting and small team meetings (about 12 total); 6 with computer projection.
- Determine parking area and permits and contact food service that extra guests will buy their lunch.
- Secure visitor Wi-Fi access for all visitors.
- Promote SCUDEM II 2018 at local site through curated email lists and outreach materials (customizable flyer and invitation message template) provided by SIMIODE as well as self-generated contacts.
- Conduct opening and closing ceremonies.
- Provide modest refreshments of coffee, tea, juice, and goodies upon morning arrival. Visiting teams are expected to pay for their lunch in the in host site's dining facilities.
- Keep to provided schedule during Challenge Saturday – or make local adjustments as appropriate.
- Lead two session Faculty Development workshop sessions with scripted materials supplied by SIMIODE. First session engages faculty and students in Modeling Scenario activity. Best to recruit fellow colleague or able student assistant from home school or visiting school (ahead of time) to lead this workshop.
- Conduct MathBowl – materials and script completely supplied by SIMIODE.
- Print out registration materials/forms (~200 sheets) for coach and team – provided by SIMIODE.
- Record scores, challenge results, and award information and send to SIMIODE.
- Collect and upload student team final Executive Summaries and Presentations.
- Fill out and send to Coaches all team and individual award certificates – SIMIODE provides forms.
- Accept a check from SIMIODE for half of the visiting and all local site registration fees.
- Local site DOES NOT need to supply lunch or awards.

**SIMIODE will do everything else, including handle all finances, create all materials, promote local site visiting teams, conduct pre- and post-event surveys, provide space at simiode.org for uploads.**

# PRE-EVENT PREPARATION

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Here we offer a timeline of necessary activities for success of SCUDEM III 2018.

## Registration in SIMIODE

All participants (local site host coordinator, student team member, and team coach) must register for SCUDEM III 2018 and at [www.simiode.org/register](http://www.simiode.org/register). This will enable communication between SIMIODE Leadership (SL) and individuals and teams. All Team Identification – members and coach, registration, and fee payments must be accomplished before close of registration on 6 October 2018.

## Advanced Preparation

Each team is to bring at least one laptop for their appropriate software.

General list of things to do OR Possibilities. All (HC) for Local Site Host Coordinator responsibility.

- (1) Reserve (and set up) central Registration area with several tables for SCUDEM Assistants (SA) to register, hand out materials, collect 10 hard copy Executive Summaries from each team.
- (2) Reserve rooms and room setup requests to include local network access.
  - a) 1 large room to hold all participants – coaches, team members, guests for opening ceremonies in morning, MathBowl for students, and closing ceremonies in afternoon),
  - b) 1 small room for each team in morning – depending upon the number of teams (on the order of 12),
  - c) 1 classroom with tables for Faculty Development workshop for students, coaches, and faculty guests in morning and afternoon). This could be the room for (a) if equipped with tables.
- (3) Secure guest Wi-Fi access and print half sheet instructions for guests.
- (4) Contact IT services to make sure projector and computer interfaces work in opening/closing ceremonies, presentation, and workshop rooms.
- (5) Contact security about extra guests on campus/parking and determine parking areas.
- (6) Make signs to the specific building where events will be held or give building identification for GPS.
- (7) Contact college public relations or marketing department about publicity/photo/video.
- (8) Possibility: Contact student clubs/other groups about photo/video for local school publicity and SIMIODE use in promoting future SCUDEM events. SCUDEM has a FaceBook page for sharing.
- (9) Contact food services about extra guests in the dining facilities and provide rough numbers and ask your food service about dietary availability, e.g., gluten free, vegetarian.
- (10) Engage two assistants (colleague or student) for preliminary work before Challenge Saturday and on the day of the challenge and meet with them before event. These are not participants in challenge.
- (11) Find coach (if not self) and three students for each home school's team(s) and register them.
- (12) Possibility: Request any coffee/breakfast/snacks if desired for participants upon arrival as some have travelled long distances. Funds for this can come from the local site's share of the registration fees.
- (13) Promote and invite nearby schools to send a coach/team(s). SIMIODE Leadership (SL) provides curated email list of schools and template invite letter at Local Site Coordinator Group (LG).

## About 4 months from challenge date:

Make initial requests for room reservations. Plan for one small classroom/conference room per team in the morning session, an extra classroom or conference room for faculty development, and a larger space (conference room, classroom, or auditorium, depending on the campus) for opening and closing remarks, as well as MathBowl or other activities during down time. Some of the initial classrooms will be reused for presentations later in the day (need computer driven projectors for presentations and for larger meetings, e.g., opening and closing ceremony, MathBowl challenge).

Most schools can receive confirmation of room reservations in less than a week. If the room reservation process takes longer on your campus, this request should be made as early as possible. At this point, ask about room setup (chairs, tables, and projection equipment) requests, when they should be made, and anyone else that should be contacted about this event.

**About 3 months from challenge date:**

Contact IT to find out about wireless guest Wi-Fi access for visitors (from their own laptops/cell phones). Also ask if someone from IT will be available on Challenge Saturday in case of any technology issues. Connectivity information should be printed out on half sheet of paper for each visitor and made available at Registration.

**About 2-3 months from challenge date:**

Contact security to ask about parking locations for SCUDEM III 2018 on campus and if anyone would be at the gate to direct traffic. Also contact marketing to ask about photography/videography of the event and/or writing an article for the college website or for local papers. Contact student clubs about photography/videography to capture the event for local publicity and SIMIODE use in promoting SCUDEM. Promote and invite nearby schools to send a coach/team. (SL) will do the same and provide curated email list of schools – all levels - and template letter at (LG). Contact your admissions office for outreach contact to exceptional high school programs in your area – admissions folks like getting good prospective students on campus! Reach out to cognate areas, e.g., physics, engineering, natural sciences, to engage faculty and student majors. Recruit a colleague from local site school or visiting school to lead the Faculty Development Workshop.

**About 2-3 weeks from challenge date:**

Confirm room reservations and facilities about room setup and Registration Desk area. Confirm with security where guests park. Obtain a supply of school stick-on name tags and writing pens for use at Registration Desk. Confirm with marketing or whoever if plan to provide photo/video of event. Contact food services about extra guests at lunch. Also reserve with them any snacks/breakfast/coffee you may want to provide guests. Recruit assistants to help on Challenge Saturday. Confirm coach and students who want to be on your school's team(s).

Print out forms for Challenge Saturday (available at (LG) in Files):

- (1) WiFi access information (1 half sheet per participant)
- (2) Judging Rubric (10 Executive Summary forms per team and 20 Presentation forms per team) – full page.
- (3) Image Release form requiring signature at registration upon arrival (1 half sheet per participant).
- (4) Integrity Statement form requiring signature at registration upon arrival (1 half sheet per participant).

On Challenge Saturday return forms (2) to respective coaches for immediate feedback to students. This is VERY MUCH appreciated. There is no need to keep copies of these forms.

Send forms (3) and (4) to SIMIODE, 26 Broadway, Cornwall NY 12518 USA or scan and send as pdf to [Director@simiode.org](mailto:Director@simiode.org).

# **PRE-EVENT ACTIVITIES**

## **SIMIODE AND LOCAL HOST COORDINATOR**

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### **Prepare Master Spreadsheet for Challenge**

Before Challenge Saturday Local Site Host Coordinator (HC) is to assemble Master Spreadsheet (located in Forms at) and post in SCUDEM III 2018 Challengers Group as File with information about participating Coach, School, and Team Members.

This Master Spreadsheet is to be used locally with information filled in as the day moves on, e.g., at registration verify information on Coach and Team name and spelling; enter the Problem that the visiting team has chosen to work on, (A, B, or C); average of Executive Summary and Presentation Score (equal weight) under ES/PR Score and award designated by Local Coordinator with Assistants – Outstanding, Meritorious, and Successful – ALL TEAMS get one of these awards – something on the order of 25% O, 50% M, and 25% S; only top three prize scores for MathBowl individual scores published – top score (and all who attained this score) is given First Prize, second highest score (and all who attained this score) is given Second Prize, and third highest score (and all who attained this score) is given Third Place.

(SL) to prepare Master Spreadsheet and post in (LG) Files area and Local Site Host Coordinator (HC) will be informed with Announcement/ Email by (SL).

Before Challenge Saturday local site host coordinator (HC) is to assemble Master Spreadsheet (located in Forms) and post in SCUDEM III 2018 Challengers Group as File with information about participating Coach, School, and Team Members.

Team Numbers written on Executive Summary hard copies only are to be assigned by (HC) as first come first served, #1, #2, . . . , #12, or more. Template for Master Spreadsheet to be posted in (LG) by (SL)

Local Site Coordinator (HC) Posts Master Spreadsheet with all summary team scores, Executive Summary, Presentation, and Combined Score, and individual scores on MathBowl without MathBowl scores beyond first three places in Files area for archival purposes.

Local Site Coordinator (HC) also uses this Master Spreadsheet and the published templates for SCUDEM and MathBowl Awards Certificates placed in Files at the (LG) to make out and send pdf Awards Certificates via email to Coaches for Coach and their Challengers. This happens after 10 November 2018 when the Post-event surveys are closed out.

### **Post MathBowl Question Round PPT, Answer Round PPT, and Answers**

SIMIODE Leadership (SL) posts the following files for use by the Local Site Host Coordinator Group (LG) (1) MathBowl Instructions file, (2) MathBowl Question Round PowerPoint file, (3) MathBowl Answer Round PowerPoint file, and (4) MathBowl Answer Key file (late night/early morning 27 October 2018), and (4) MathBowl Challenger Answer Sheet in (LG) Files (several weeks before 27 October 2018).

### **Posting Forms in Local Site Host Coordinator Group (LG) Files**

SIMIODE Leadership (SL) posts the following files for use by the Local Site Host Coordinator Group (LG). Unless otherwise mentioned, materials here will be posted 8 weeks before 27 October 2018.

- Release consent form for use of Images – ½ sheet - one copy per participant – Coach and Students, signed at Registration, signed at Registration.
- Integrity form for participant signature – ½ sheet - one copy per participant – Coach and Students, signed at Registration.
- SCUDEM Scoring Rubric - ½ sheet - one copy for each participant - Coach and Students.
- Executive Summary Judging Form - full sheet - 10 copies per Coach
- Presentation Judging Form - full sheet - 4 copies per participant - Coach and Students
- Executive Summary Scores Tally Spreadsheet - Assistants Enter Scores
- Presentation Scores Tally Spreadsheet - Assistants Enter Scores
- Master Spreadsheet – For Final Public Viewing in Challengers Group at Local Site as file with Title SCUDEM III 2018 - NAMES of HOST SCHOOL – Scoring and Awards

Next five items are posted 26 October 2018, Friday morning before Challenge Saturday:

- Math Bowl Challenge III 2018 - Blank Answer Sheet
- MathBowl Question Round PowerPoint file
- MathBowl Competitor Answer Sheet and Possible hints  
To use hints, present each slide, wait 15 seconds, give the hint, wait 15 seconds, move on to next slide.
- MathBowl Answer Round PowerPoint file  
AFTER score sheets are collected. Repeat of questions, ask audience, then show answer.
- Copy of problem statements for Problems A, B, and C. Posted 19 October 2018. Issue one copy per Coach at Registration to assist them in understanding the problems they will be judging.
- Additional issues for three selected problems – all on one sheet per team. Posted 26 October 2018, Friday morning before Challenge Saturday for printing and distribution on Challenge Saturday at Opening Ceremony – one copy per coach.

# ROLE OF COACH

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The role of the Coach for a SCUDEM team of three students is to coach.

The Coach is NOT to engage in any challenge problem activity for the challenge itself, e.g., students are to work on their mode and then to prepare Executive Summaries and Presentations WITHOUT ANY assistance from a coach. From when the problems are initially posted until the end of Challenge Saturday the coach is to let the students grow and learn.

## Engagements for the Coach

Here are some things for coaches to consider.

- (1) Help form a team, perhaps through coach's class, Math Club, word of mouth, posting a flyer, etc.
- (2) In building a team, try for diversity of skills, e.g., not all programmers, not all "dreamers" – a blend.
- (3) Find a local site which is nearby and register as Coach with team registrations to follow before 6 October 2018.
- (4) Plan transportation to and from a local site on Challenge Saturday, 27 October 2018. Make sure you assure them of meal arrangement – teams pay for lunch at local site and discuss meals in transit. Be sure they have needed money for an all-day outing.
- (5) Make travel arrangements, i.e. meeting and return drop place; allotted time, mode, and travel route; driver or other transportation; meals in transit; parking (local site host coordinator will provide this information).
- (6) Meet with team to go over exactly what SCUDEM III 2018 is all about, e.g., timeline, requirements, expectations.
- (7) Go over past SCUDEM problems and student submissions. Discuss how they would attack the model first in practice sessions and then examine other students' submissions. Talk about how to select which problem to do.
- (8) The three SCUDEM problems are in these domains (i) physical sciences or engineering, (ii) life sciences or chemistry, and (iii) social sciences. So make sure students know that there could be interesting modeling and learning experiences in SCUDEM outside their main area of study.
- (9) Stress general modeling strategies; go over a complete modeling cycle from assumptions to model building to solutions and interpretations to parameter estimations or data fitting to revisiting reality to communicating final results in Executive Summary and Presentation; point out differential equations solution methods; make sure student accounts and access to computation tools are in order; visit with them informally during the week to see if they are making progress – ask about their pace, their attention to school work as well as time on task for SCUDEM; and perhaps offer them some nutritional snacks
- (10) Read the instructive essay by the problem poser in response to student submissions. This document emphasizes what the problem poser had in mind and also how students addressed issues as well as technical aspects of materials submitted.
- (11) Share some of your readings concerning modeling principles and good approaches.
- (12) Meet with students occasionally during the challenge period to be sure they are aware of the rules and expectations.
- (13) Email students from time to time to give moral support, send them some funny math stuff for chuckles.
- (14) Ascertain if they are getting rest and maintaining a rich student life.
- (15) **DO NOT engage in discussions about the model itself or students' strategies during Challenge Week.**

# CHALLENGE SATURDAY ACTIVITIES AND RESPONSIBILITIES

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## Challenge Saturday Time Table with Duties and Expectations

8:00 AM: Staff Arrival

- (SL) - Check in with staff, sort necessary materials to be given out to each group.
- (HC) - Local Coordinator fills in Master Spreadsheet (Excel template provided by SIMIODE Leadership (SL) in Files of Local Site Host Coordinator Group (LG)) with the following information and prints out copies for assistants to use and enter data at Registration with the following information:
  - Local School Team Number, 1 through n, for n teams at Local Site,
  - Full School Name, Assigned teamwork room at local site,
  - Coach name,
  - Coach email,
  - Associated team members full name,
  - Associate team members emails,
  - Problem Identification for Team,
  - Team Overall Score,
  - Award level (Outstanding, Meritorious, Successful),
  - Individual MathBowl Score
- (SA) – At Registration each team submits 10 paper copies of anonymous Executive Summary to a SCUDEM Assistant (SA) BEFORE they work on additional issue for their modeling problem. The additional issue is ONLY to be addressed in small part of their Presentation, clearly identified as the additional issue. Local (SA) to insert number assigned by local host to each visiting school (01, 02, . . . ) in upper right hand corner of Executive Summary hard copy for the purposes of assuring anonymity in judging and proper recording of judges scores. Judges are to use only this number in their score sheets.
- (SL) – Upon arrival each person receives an itinerary for the day prepared by (HC) from template provided by SIMIODE Leadership (SL) in Files of (LG), a schedule with rooms identified for opening and closing ceremonies, Faculty Development workshop, and teamwork rooms, (HC) directions to log onto the Wi-Fi, a (HC) photo/video release form to sign and turn in provided by (SL) in Files of (LG), and an (HC) Integrity form to sign and turn in provided by (SL) in Files of (LG).

8:30-8:45: Arrival of Coaches and Teams - Registration and Check-In

- (HC, SA) Greet Teams, pass out materials and assist in signing forms which are collected. The two form sets (Video/Image Release and Integrity) are to be mailed to Director SIMIODE, 26 Broadway, Cornwall NY 12518 USA after completion of the challenge or scanned and pdfs sent to [Director@simiode.org](mailto:Director@simiode.org) .
- Assistants write School Team Number in upper right hand corner of first page of paper copies of Executive Summary for anonymous identification in scoring sheets recorded by assistants.
- (SA) - Make sure to note which problem each team did on the Master Spreadsheet file and use this to place them in Presentation Rooms at 2:00 PM. We recommend at most four consecutive presentations per room. It is also recommended to try and have consecutive Presentations of different problems so each Presentation room has diversity of problems.
- (SA) - Assist in logging on to the Wi-Fi network

8:45-9:00 AM: Opening Session (HC, SA) Introduction and Welcome

- (HC) – Make sure all forms are filled out and sorted before joining the ceremony.

9:00 AM: Teams adjourn to work on additional issue of their problem

- (SL) - Assist teams in making their way to the assigned room where they will be working on the additional problem for their model.
- (HC) - Hand out one page additional issues sheet – one sheet per team. Should be one sheet printed before 9:00 AM (local time) for each site.
- (SA, HC) - Drop in to talk to teams and perhaps pass out small snack items. If not interrupting teams, ask for feedback about their experience with SCUDEM and take notes/testimonials to improve experience in the future – submit them in overall report with stories of success and suggestions for improvements to [Diretor@simiode.org](mailto:Diretor@simiode.org).

9:00 AM: (HC) - Faculty adjourn to Faculty Development Workshop I room.

- First Session in the Morning (9:00 – 10:30 AM): (HC, SA) Go over Scoring Rubrics. Coaches and other visiting faculty judge anonymous Executive Summaries using Scoring Rubric Judges Form.
- (SL) - Grading the Executive Summaries can feel like "speed reading." Allow for first 15 minutes to discuss the Scoring Rubric. We suggest each Judge (Coaches and visiting faculty) be given 6 Executive Summaries and corresponding Scoring Rubric to be read and scored during the reading period from 9:15 AM to 10:30 AM. Make sure each team submission gets the same or close to the same number of reads. Make sure Judges have a copy of the Problem Statements for all problems, A, B, and C.
- SCUDEM Assistant (SA) collects scores and enters them in Master Spreadsheet to obtain an average Executive Summary score which is then equally weighted and averaged with the Presentation score to be entered in afternoon Presentation period..
- Second Session in the Morning (10:30 – 11:30 AM): (HC, SA) leads faculty and students in Modeling Scenario with material and background information provided by (SL) – several tracks and options provided in (LG) Files area.

11:30 AM: (SA, HC) - Lunch at campus facility in which all pay as you go. Direct visitors.

12:00 Noon: Executive Summaries and Presentations Collected

- SCUDEM Assistant (SA) - Collect Executive Summary (PDF format) and Presentation (via flash drive) from each team before lunch and upload for afternoon Presentation/Judging sessions in separate rooms. Presentation must have PDF version and PowerPoint version.
- Both documents should have full identification internally as to Problems chosen (A, B, or C), Team member full names, Coach full name, and School full name.
- Documents should have name ES-x-CornwallUniversity-Team-y and PR-x-CornwallUniversity-Team-y respectively where ES and PR are the designators for Executive Summary and Presentation, respectively. Here  $x = A, B, \text{ or } C$  for problem number and  $y = 1, 2, 3, \dots$  for y-th team from school, in this case CornwallUniversity.
- Place files in Project called, "Executive Summaries and Presentations," of SCUDEM III 2018 Local Site Host Coordinator Group, into two appropriate folders, "Executive Summary" and "Presentation" through upload process. This Project is in <https://www.simiode.org/groups/scudemiii2018localsite>, the Local Site Host Coordinators group. This Project has been created by SIMIODE Leadership (SL) ahead of event, for availability by local Host Coordinator (HC) and SCUDEM Assistant (SA) on logged in machines.
- **WARNING:** Also make copies of all Presentations on several thumb drives for each Presentation room in case of connectivity issues.

1:00 PM: Return from Lunch

1:00 PM Teams enjoy Math Bowl with individual challenge after which they have time to relax and meet.

- (HC, SA) - Pass out MathBowl answer sheets, help with conducting MathBowl. Students place name and school on MathBowl answer sheets.
- Before start of MathBowl hand out a small piece of paper to each student team member and ask them to write down the number of hours they spent individually and in team effort) on SCUDEM during the

period, 16 – 27 October 2018 – not counting Challenge Saturday hours. Enter these numbers and the average for this local site in the Master Spreadsheet.

- Students are assembled in large classroom. (HC) introduces MathBowl, goes through each PowerPoint slide after showing the sample slide. For each question give 30 seconds, with hint issued 15 seconds after initiation of slide with question.
- Collect student MathBowl answer sheets. Then slowly go over MathBowl answer PowerPoint, asking for volunteer answers before revealing answer for each question. Expect groans, laughter, and recognition!
- (SA) collect and score MathBowl sheets; upload the scores to a Master Spreadsheet to determine ‘winners.’ Highest score (no matter how many) First Prize, second highest score (no matter how many) Second Prize, and third highest score (no matter how many) Third Prize. Awards to be announced at Closing Ceremony.
- [NB: Some local sites permitted faculty to join the students in the MathBowl, but the coaches did not compete for awards, just for fun. The time spent on MathBowl was not as long as scheduled and some Faculty Development II workshop material and discussion can still be offered.]

1:00 PM (HC) - Faculty adjourn to Faculty Development Workshop II room.

2:00-3:30 PM: Student Presentations

- (HC, SA) Presentations in each presentation room (10 minute presentation, 5 minute question/ conversation period and 5 minute pause for judging and set up for the next presentation). This means faculty and students can move about the rooms. **HOLD TO TIME SCHEDULE VERY FIRMLY!** Faculty MUST recuse themselves from judging their own team Presentation. Presentations are to be judged by Coaches and Visiting Faculty. Student re not to judge.
- Teams are to make clear what their problem involved. Students are also to make clear when they discuss the Additional Issue in their Presentation.
- (SA) - Collect and enter all scores for each Presentation from judging forms and determine average Presentation score for each team. We recommend this is done during the presentation session. Scoring rubrics can be passed to the side of one room and collected once they have been completed for each Presentation so the SCUDEM Assistant (SA) can enter the scores in the Master Sheet.
- (SA) - Compile scores for each Presentation into a Master Spreadsheet and average this score with the Executive Summary score from morning Coach Judging to determine final Total Score for each team.
- (SA, HC) - In consultation with (HC) local faculty host determines three level scores for awards: Outstanding, Meritorious, and Successful. Each team will get some award. Perhaps on the order of 25% Outstanding, 50% Meritorious, and 25% Successful, but not rigidly so. This is only reflective of local judging for there is no overall SCUDEM judging or prizes.

4:00– 4:15 PM: Closing Ceremony

- (HC) Individual (top three places only) Awards for MathBowl and Team combined Executive Summary and Presentation. Reminder: Certificates to be awarded after post-event survey period is completed, no later than 10 November 2018, after Challenge Saturday. Local site coordinator (HC) or assistant (SA) to fill out certificates per summary Master Spreadsheet file scoring. These are to then be emailed to the respective Coaches for distribution by Coaches to their team members.
- Remind all they will get notice shortly, indicating they will have an opportunity on Post-Event Survey to make comments and suggestions.

4:15 PM: Departure

- (SA, HC) - Help to clean up, move supplies out, thank teams for coming, and assist in any necessary jobs.

### **Additional Comments on Registration Numbers**

Registration for Coach Team personnel from visiting schools closes at midnight on 6 October 2018, three weeks before problems are released to team members on 27 October 2018. During this time there may be some need to negotiate with SIMIODE for team reassignments to local sites based on their preferences and adjusting for number of teams, e.g., high number of teams wanting to attend one local site which might not be able to accommodate that many or low number of teams which may necessitate reassignment of local sites themselves.

As a rule each presentation session should have 4 consecutive team Presentations: 10 minute talk, 5 minute questions, and 5 minute break for judges to record scores and next team to take the floor. Thus with 12 teams there would be three parallel sessions. However, should there be more than 12 teams there might be a need for additional rooms (could use team preparation classrooms from the morning sessions) for extra parallel sessions for Presentations.

- (1) (HC) Local Host Coordinator: Use results from challenge: Individual MathBowl, Team overall score – Executive Summary and Presentation averaged, to create awards and certificates and mail these certificates to the Coaches within a week of the challenge for them to distribute to their students. These forms are provided in (LG) under Files.

(SL) will place templates in Local Host Site Coordinator Group File area. Incidentally, the Post-Event Survey for both students and faculty coaches is due by midnight, 10 November 2018, and will close at that time.

- (2) (HC, SA) Local Host Coordinator: Fill out Post-Event report on observations, suggestions, requests, what went right, and what could be improved and then email to [Director@simiode.org](mailto:Director@simiode.org). These are VERY important for improving the process and making actions and responsibilities more clear next year.
- (3) (HC) Local Host Coordinators will receive a check for one-half registration fees for visiting teams at their site AND all local site team registration fees refunded. There is NO need to render an accountability report or file with IRS as income.

# PRACTICAL ADVICE BASED ON EXPERIENCE

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## Communication

- (SL, HC) When emailing Students ALWAYS copy Coach as email may not get through to students.

## Pre- and Post-Event Surveys

- (SL, HC) - Send out email to encourage/require students and coaches to fill out Pre- and Post-Event Surveys.

## Uploading Files and Permissions

- (HC, SA) Both (HC) and (SA) need permission to upload files into folders at appropriate Local Site Group in SIMIODE (LSG) and to be sure that the Executive Summary is PDF and also to ensure that there is a Presentation in PDF format – all with correct title formats. (HC) as Manager can issue Manager status to trusted Assistant for this purpose.
- (HC, SA) - Collect, and after entering scores in Master Sheet, give the Judge's score Sheets for Executive Summary and Presentation to Coach of each team. This gives immediate feedback to students.
- (SL) - Collect and post in SIMIODE area ALL Executive Summaries and Presentations, but not scores.
- (HC) - Post any material from Faculty Development Workshop in Coaches Group in Files Under folder Faculty Development Workshop Materials
- (HC) - Write-up Report and submit to [Director@simiode.org](mailto:Director@simiode.org) about things that went well and things that could be improved, as well as share any remarks, observations, opinions, and feedback.
- (SL) - Post Statements of Problems and Added Issues at (LG) site after the challenge.
- (HC) - Send out emails to both coaches and students announcing posting of final results.
- (SL) Send out certificates of appreciation to Local Site Host Coordinator. :+)

## Materials for Judging

- (SL) - Be sure to put on the judging forms for the Executive Summary and the Presentation that this material will be made public. Be professional and constructive.
- (SL) - Check with judges as to whether or not the grading or judging rubric was effective by surveying the persons who used it in the Post-Event Survey.
- (SL) Make CLEAR students will incorporate the additional issue only in Presentation.
- (SL, HC, SA) - There must be strict adherence to the two page limit for the Executive Summary + one page References. Failure to do so will result in disqualification or reduction to lowest award level.

## MathBowl

- (SL, HC) - MathBowl questions will be pertinent and we will offer set of hints that are to be issued, say 15 seconds into the 30 second period after the question is posted in slide show and while students are working on answer.
- (HC, SA) - Immediately at start of MathBowl ask each student to fill in on an index card or slip of paper (anonymously) individually, as to how many hours they spent TOTAL working on SCUDEM from Friday, 19 October 2018, release of the Problems until 9:00 AM Release of the Supplementary or Additional Issue. Collect before MathBowl starts and enter data in spreadsheet with proper identification of Hours in Column A with Average computed and upload to Local Site Coaches area as a separate file called "Student Hours – Local School Site Name." Also send this spreadsheet to the Director of SIMIODE at [Director@simiode.org](mailto:Director@simiode.org) .

## Local Site Personnel

- (HC) - It is probably a good idea at each local site to have a team for running Challenge Saturday events consisting of two students and one faculty, and perhaps a second faculty or a senior student to run the event, as there may be too many parts for one faculty to do.
- (HC) - Local faculty should be prepared to deal with unusual circumstances for example arrival on Saturday morning and finding rooms locked or inability to get Wi-Fi access.

- (HC) - Perhaps check that there is an IT person on duty or available for contact on Challenge Saturday.

### **Role of Coaches**

- (SL) - Strong admonition to the coaches to not interfere, comment, or render help to the student challenge during the challenge period. Indeed, SIMIODE will prepare a one-half page declaration to be signed by student team members AND coach that the Coach has not assisted the team at all, in any way. This is to be signed and turned in at Registration.

### **Registration**

- (SL, HC) - At Registration or Check-In on Challenge Saturday keep paper to a minimum. Have packet of sheets of information like Wi-Fi, schedule, room assignments etc. all info in one or two sheets on two sides, if possible.

### **Actions for SIMIODE**

- (SC) In the week after Challenge Saturday, when all the numbers are known, send out stipend check made out to Local Site Host Coordinator. No 1099's needed, No Soc Sec Num's needed, and no accountability from Local Site Host Coordinator needed.

## **POST-EVENT ACTIVITIES**

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- (SA) Tidy up Registration area and rooms used for SCUDEM events – meeting rooms, classrooms.
- On Challenge Saturday return Judging Rubric (10 Executive Summary forms per team and 20 Presentation forms per team) – full page. to respective coaches for immediate feedback to students. This is VERY MUCH appreciated. There is no need to keep copies of these forms.
- Send forms (1) Image Release form requiring signature at registration upon arrival (1 half sheet per participant) and (2) Integrity Statement form requiring signature at registration upon arrival (1 half sheet per participant) to SIMIODE, 26 Broadway, Cornwall NY 12518 USA or scan and send as pdf to [Director@simiode.org](mailto:Director@simiode.org) .
- (HC) Write appropriate emails thanking all personnel/staff involved at Local Site for successful event.
- (HC) Local Site Coordinator (HC) and SCUDEM assistant (SA) use the Master Spreadsheet and the published templates for SCUDEM and MathBowl Awards Certificates placed in Files at the (LG) to make out Award Certificates and send respective materials to each coach. This should happen within the week after the challenge (HC). It may be possible to print certificates for distribution at the challenge.
- Local Site Coordinator (HC) and SCUDEM assistant (SA) may upload pictures and video to Local Site Host Coordinator Project Area folder, “Local Site Photos and Videos,” making a subfolder with full school name to hold their images.
- Submit overall report with stories of success and suggestions for improvements to [Diretor@simiode.org](mailto:Director@simiode.org) .
- Teams could use their model in SCUDEM as a basis for submitting a Modeling Scenario to SIMIODE for publication consideration. One can learn more about the double-blind, peer-refereed online publication possibility at <https://www.simiode.org/about-peer-review> . Several students have authored published materials and we would welcome more.

## **ADDITIONAL NOTES FROM SCUDEM ASSISTANT AND HOST COORDINATOR**

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- (HC) – Campus signs may help for directing teams to buildings or you can expect arrivals to be fully dependent on GPS for finding building on campus.
- (SL) - Grading the Executive Summaries can feel like "speed reading." Either allow more time, or split up the summaries differently to ensure enough judges read each one. Allow for 15 minutes to discuss the Scoring Rubric. We suggest each Judge (Coaches and visiting faculty) be given 6 Executive Summaries and corresponding Scoring Rubric to be read and scored during the reading period from 9:15 AM to 10:30 AM. Make sure each team submission gets the same or close to the same number of reads. Make sure Judges have a copy of the Problem Statements for all problems, A, B, and C.

### **IMPORTANT ISSUE: STUDENT TIME ON TASK**

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What is a reasonable time for students to commit to this activity during Challenge Week?

For SCUDEM I 2017 the number of hours of work each individual student committed to SCUDEM problems was requested just before MathBowl (individual and with team members) over the 5 day period from 8:00 AM Monday, 9 October 2017, through 9:00 AM Saturday, 14 October 2017.

For SCUDEM I 2017 Problems were released at 8:00 AM local time on Monday before Challenge Saturday and Additional or Supplemental Problem/Issue was released at 9:00 AM local time on Challenge Saturday.

Of the 21 students on site for SCUDEM I 2017 we had 19 students respond to our question:

“How many hours did you spend on SCUDEM problems during the period 8:00 AM Monday, 9 October 2017 when the problems became available until 9:00 AM Saturday, 14 October 2017 when the Supplementary Issues became available?”

The average number of hours was 14.3 hours with a standard deviation of 9.18 hours in this five day period for an average of 2.86 hours per day. This amount, or perhaps less would be reasonable for a challenge, but each student has to manage her/his own time and events surrounding the Challenge Week.

The maximum number of hours spent on SCUDEM I 2017 as reported by students was 35 hours and the minimum number of hours was 4 hours.

For SCUDEM II 2018 the number of hours of work each individual student committed to SCUDEM problems was requested just before MathBowl (individual and with team members) over the 8 day period from 8:00 AM Monday, 13 April 2018, through 9:00 AM Saturday, 21 April 2018.

From sampled data, the average number of hours was 13.5 hours with a standard deviation of 6.1 hours in this eight day period for an average of 1.7 hours per day. This amount would be reasonable for a challenge, but each student has to manage her/his own time and events surrounding the Challenge Week.

There is no set amount of time that each group must dedicate to SCUDEM, for what matters is the lessons students learn, the relationships they foster and the way they grow as thinkers, and in this there is no standard.