MIT Program in Atmospheres, Oceans, and Climate (POAC)

MIT/NSF Project: Weather in a Tank

Instructor Weekly Log

Professor Name: _____ **University/College:** _____
Date (Project Week Ending Friday): _____

☐ ***Check if no demonstrations were used this week. Please specify reason why:*** _____

Demonstrations Conducted This Week	**Instructional Application**	**Student Reactions**	**Additional Materials Used and Instructor Feedback**
Check titles of all demonstrations conducted this week. □ Rigidity imparted to rotating fluids □ Cloud Formation □ Convection □ Radial inflow □ Parabolic surfaces □ Inertial circles □ Perrot's bathtub □ Taylor Columns □ Hadley/Thermal wind □ Cylinder Collapse □ Ekman layers □ Baroclinic Instability □ Ekman pumping □ Ocean gyres □ Thermohaline Circ □ Source/sink □ Other (Specify):_____	***How was demonstration(s) used to support instruction?*** *(Check all that apply)* □ Used in a laboratory setting. □ Used to support lecture. □ Used for student small-group projects. □ Used in conjunction with web-based materials. □ Used to present demonstrations for visitors to the college/university. □ Used to present demonstrations to groups/schools outside of the college/university. □ Loaned to other schools/groups. □ Other: (Specify):_____	***Briefly describe student reactions to the demonstrations (pros and cons).*** *(e.g. increased motivation, created confusion, encouraged questions/ discussion, promoted further interest/research, etc.).*	***Instructional materials used in conjunction with these demonstrations or experiments.*** (*Check all that were used this week*). □ Marshall and Plumb Text: *Circulation of the Atmosphere and Ocean* □ Project Website and Labguide □ Published Textbooks (Specify:_____) □ Personal Course Notes □ Other: (Specify:_____) **INSTRUCTOR FEEDBACK** This demonstration (title: _____) enhanced my instruction. □ **Yes** □ **No** I would use this demonstration (title:_____) again in instruction. □ **Yes** □ **No** **Please comment on the benefits and/or challenges of using this demonstration(s) or equipment in instruction. (***Specify title of experiment(s) before each comment.***)**

□ **Submit**

MIT/NSF Project: Weather in a Tank
Rubric for Oral Student Presentations

	1. Deficient	2. Fair	3. Good	4. Excellent
Organization of Presentation	• Disorganized, appears unpracticed • Does not utilize poster or graphic elements • Material is uneven and confusing; little use of technical terms • Unable to answer relevant questions • Only one presenter (if team)	• Organized presentation, but relies heavily on notes • Ineffective use of poster or graphics • Key parts of the study not presented; limited use of technical terms • Unprepared for most questions • Redundant information presented by team members	• Clear, well-practiced presentation of project • Effective use of poster • Key parts of study presented; proper use of technical terms, defined when appropriate • Prepared for all questions • Each team member shares responsibility for presentation	• Highly organized, well-practiced, and engaging presentation • Poster/overheads are well designed and integral to the presentation • Key study parts emphasized; technical terms defined and explained • Team members entertain questions and give thoughtful responses • Team members transition flawlessly and show mastery of materials, enthusiasm and correctness
Use of Technology	• No attempt to use technology appropriate to the topic (e.g. PowerPoint, overheads, etc.) • No references to relevant websites, simulations, etc.	• Some use of technology appropriate to the topic (e.g. PowerPoint presentation, overheads, etc.) • Few references to relevant websites, videos, simulations to aid student interest and understanding of the topic. • Fumbles with technology; not practiced	• Demonstrates some competence and ease in using technology to illustrate points or present examples (e.g. PowerPoint, videos.) • Provides some references to relevant websites and videos to aid student understanding of the topic	• Manages technology competently, appropriately, and effectively to illustrate points, provide simulations, animation, demonstrations, and/or vignettes to aid in understanding • Provides a variety of ADDITIONAL REFERENCES to relevant websites, videos, simulations, and live video streaming SITES to aid student interest and understanding of the topic.
Aesthetics	• Contains many errors; Lack of proofreading evident • Visual elements too similar • Lack of appropriate graphics • Oversized, flimsy formats used	• Edited with some errors in grammar and spelling • Inconsistent layout**;** materials appear to have been rushed or thrown together • Confusing graphics • Lacks discretion in inclusion of elements	• Well edited, clear and easy to read • Use of graphics (tables, graphs, drawing) where appropriate • Consistent layout • Adequate text for independent display • Good use of color, attractive	• Visual and supplementary materials are provided that heighten understanding of material. • Incorporates graphics that are relevant and effective • Excellent balance between text and graphics • Use of creative, novel, or personal touches that aid understanding • Makes good use of color and space
Use of Sources	• Lacks appropriate references • Lacks evidence of a relevant literature review • No reference resources list provided for students	• Unable to place theories within context of existing literature • Incomplete review of relevant literature • References provided only from required reading	• Frequent, reliable citations to support theories, procedures, and conclusions • Incorporation of required readings where appropriate • Use of some outside sources including articles, books and Internet sites, and courses	• Evidence of an informed, thorough and relevant literature review • Integrates resources from other related sources and courses • Uses a variety of appropriate sources, articles, books, Internet sites, etc.

MIT/NSF Project: Weather in a Tank
Rubric Scoring Guide for Oral Student Presentations

Student ID Number _____ **Date:** _____
College/University _____ **Scorer Name:** _____

CRITERIA	LEVELS OF ACHIEVEMENT (Check scoring box that applies to each category. Numbers refer to points for each section.)					Subtotal for Each Criteria (*total scores across rows*)
Organization of Presentation	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Use of Technology	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Aesthetics	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Use of Sources	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
					TOTAL SCORE	

Maximum Possible Score = 16 (Excellent) **Minimum Possible Score = 0 (Deficient)**

Score Range for Grading: **4 or below=Deficient** **5-8= Fair** **9-12=Good** **13-16= Excellent**

MIT/NSF Project: Weather in a Tank
Rubric for Student Laboratory Written Reports

	1. Deficient	2. Fair	3. Good	4. Excellent
Completeness of the Project	• Misinterpreted project/Project design components not stated • No use of technical terms • Misuse of theories/ideas/concepts • No attempt to integrate laboratory and synoptic observations • Late without permission	• Project not fully understood /conceptual framework for the project missing. • Little use of technical terms/jargon obscures arguments • Little discussion of relevant theory/concepts • Insufficient integration and discussion of laboratory and synoptic observations	• Project adequately designed/evidence of conceptual framework • All project components completed • Appropriate use of technical terms • Clear understanding of theory and application to the project • Adequate attempt to integrate laboratory and synoptic data	• Project very well designed and executed. Conceptual framework clear and concise. • Goals of the project and report clearly stated and thoroughly carried out • Excellent understanding and use of technical terms • Exceptional balance between theory and observation and creative application • Laboratory and synoptic experience integrated seamlessly
Use of Sources	• No citations or references to sources • No evidence or referral to required readings • No evidence of note taking in class/no referral to class discussions • Generalizes from personal opinion	• References often not cited or poorly cited. • Inappropriate or gratuitous incorporation of references • Lack of the most appropriate and relevant citations from required readings • Few references to class discussions	• Frequent, reliable citations to support several key points • Incorporation of and demonstrated understanding of relevant required readings • Inclusion of additional relevant readings • Frequent reference to class discussions	• Variety of appropriate sources cited from journal articles, books, and Internet sites, etc. • Evidence of exceptional ability to comprehend and apply information from required readings • Seamless integration of highly relevant additional readings to support key points • Effective use of class discussions to clarify ideas or illustrate points.
Data Analysis and Interpretation	• No evidence of data or fudged data • Excuses given for not collecting data • No use of theory to interpret observations or data • No idea what to do with data • No visuals, pictures, graphics, or diagrams to display data • No discussion of errors • No evidence given to support conclusions	• Random or sporadic data collection and record keeping • Inaccurate or sloppy representations of observations and/or data • Incomplete or incorrect analysis of data • Limited use of theory to interpret observations and/or data • Inadequate use of visuals, pictures, or other graphics to display data • Inadequate discussion of errors • Conclusions weak or not fully supported by data.	• Consistent, clear data collection methods. • Careful records of a variety of measurements • Data fully utilized and sufficient to test theory • Appropriate use of visuals, pictures, or other graphics to display data • Appropriate discussion of errors • Addresses (many) questions that arise from the data • Adequate discussion of conclusions supported by data.	• Original data carefully and consistently collected, documented, and graphed • Additional data collection designed to answer questions and test ideas/concepts • Novel scientific techniques employed and matched to problem • Creative and highly technical use of visuals, pictures, or other graphics to display and explain fine points of data analysis results • Evidence of complete error analysis • Conclusions are insightful, fully based on data, and point to applications in new settings or to continued theoretical research.

	1. Deficient	2. Fair	3. Good	4. Excellent
Organization	• Lacks a discernable organizational framework. • Internal divisions are unclear or absents • No section headings, subheadings • Sections are rambling and disparate • Supporting elements not present or not tied into text	• Organizational framework is somewhat mechanical or awkward. • Many organizational elements present (introduction, body, and conclusion), but there is a weak logical flow • Sections are not well integrated • There are few section headings or inappropriate section headings that do not enhance readability. • Lacks important appendices or supporting documents	• Establishes and maintains and overall framework that facilitates the expression of ideas • Constructs adequate internal divisions (introduction, body, and conclusion) that help the reader navigate the text. • All relevant sections are present • Headings and subheadings are used, but could be more descriptive • Some appendices and supporting documents are included	• Establishes and maintains a coherent and unifying framework. • Arranges ides logically or sequentially and connects them seamlessly. • Creates clear internal divisions (e.g. an introduction, body, and conclusion) • Sections headings and subheadings are clearly marked and are labeled in a way that enhances readability • All relevant appendices and supporting documents are included
Aesthetics	• Exhibits little control of the conventions of edited written English, with frequent, serious mechanical errors that make the paper difficult to read. • Lack fluency, precision, and/or economy in vocabulary; incorrect or clumsy use of scientific language may obscure meaning. • Misuses or omits standard source documentation for citations (e.g. MLA or APA style)	• Generally controls the conventions of edited written English, but with occasional lapses that may be distracting, but not confusing. • Uses vocabulary and scientific language that is adequate, but phrasing may be wordy, repetitious, or imprecise. • Inconsistent use of graphics to enhance the text • Uses appropriate documentation style (e.g. MLA, APA), with citations fundamentally correct; may have minor errors in style and/or format	• Demonstrates consistent but not universal control of the conventions of edited written English (grammar, punctuation, spelling) • Uses vocabulary and scientific language efficiently and economically/phrasing is clear but not elegant • Uses graphics (tables, graphs, drawing) where appropriate to enhance reading or understanding • Conforms to the appropriate documentation style (e.g. MLA, APA) this is almost completely correct in format	• Controls all conventions of edited written English with few, if any, grammar, spelling, or punctuation errors • Exhibits accuracy, precision, and fluency with a broad range of vocabulary including scientific language • Uses a writing style that is engaging to the reader • Graphics are well integrated and connected to the text • Conforms to appropriate documentation style (e.g. MLA, APA).

MIT/NSF Project: Weather in a Tank
Student Written Reports-Rubric Scoring Guide

Student ID Number _____ **Date:** _____
College/University _____ **Scorer Name:** _____

CRITERIA	LEVELS OF ACHIEVEMENT (Check scoring box that applies to each category. Numbers refer to points for each section.)					Subtotal for Each Criteria (*total scores across rows*)
Completeness	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Use of Sources	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Data Analysis and Interpretation	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Organization	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
Aesthetics	□ No Evidence to Score (0)	□ Deficient (1)	□ Fair (2)	□ Good (3)	□ Excellent (4)	
					TOTAL SCORE	

Maximum Possible Score = 20 (Excellent) **Minimum Possible Score = 0**

Score Range for Grading: **5 or below=Deficient** **6-10=Fair** **11-15=Good** **16-20= Excellent**