Teaching Lab via Distance Education: Enabling Student Teams

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- Ongoing for several years
- DE training
- Most SSM departments offer DE classes
- No lab classes
- Meteorology perhaps most amenable
PHYS298; Exercises in Weather and Climate

- 2 credit class (normally labs are 1 credit)
  1. Standalone class; thus includes a bit of lecture
  2. Purely online; thus includes technology training
  3. Include some climate labs
- Maymester (2 weeks)
- 11 students in 2014
- Recruiting!
Student teams

- Groups of two most manageable
- Initial class period; students used discussion board to find similar technology, schedules, personalities
- Students communicate via Skype, Facetime, Discussion Board, Email, Phone, Text, and In Person
- Instructor met with each group; governed and responded in discussion board; held copious office hours via phone and skype
- Peer participation grades required for each lab
17 labs

- Basic physics: temperature, pressure, radiation (3 labs)
- Basic meteorology: atmospheric structure, humidity, latent heat, droplet growth, mapping
- Forces: Coriolis Effect, Centripetal Force, Pressure Gradient Force, Friction, Gravity
- Combination: Wind, Cyclones, Hurricanes, Forecasting
- Climate (4 labs)
Lab structure

• Weather measurements at their location
• Interactive computer simulation
• Graphing; graph interpretation
• Figure interpretation; force diagrams
• Data collection
• Problem solving; calculations
• Error analysis
• Guided reasoning; Critical thinking/application
• Map creation; interpretation; shorthand
• Review questions
Findings

• Tight timeline required, but allowed 3 missed deadlines
• Workload needs to be specified upfront
• Many types of technology need to be provided
• Perpetual instructor oversight essential
• Initial lab is ‘practice’; allows students to get familiar with the technology
• Quick grading even more essential
• Advertising should be non-traditional