



COLLEGE *of*
CHARLESTON

Teaching Lab via Distance Education: Enabling Student Teams

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Distance Education at the College of Charleston

- 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