

# Undergraduate Research at Valparaiso University

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# Valpo Context

- Exclusively undergraduate dept
- Many double majors
  - Meteorology, Physics
  - Mechanical, Civil engineering
  - Education
  - Arts & Languages
  - Computer Science
  - Social Sciences



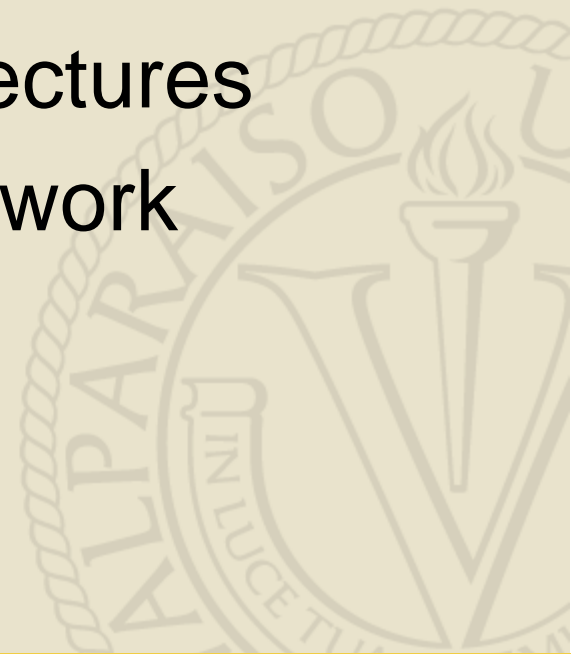
# Research Program Focus

- Primarily first and second year students
- Inclusive for skill level and major interest
- Process, not product, oriented
  - Read, Conjecture, Prove, Write, Present
- Pre-REU focus
- Faculty interest areas
- Teams



# Characteristics of Good Problems

- Engaging Problem
  - Easy to state
  - Relevant to students
- Easy to generate data for conjectures
- Easily stage-able sequence of work
- Computing component
- Access to readable literature



# Current Problems

- Generalized Segregation Game
- Variations on the Piles of Pebbles
- Analysis of Course Evaluations
- Modeling Infectious Diseases
- Radio Colorings of Graphs



# Other Research Assistants

- USDA projections
- Automated Tutoring Systems
- RFID vehicle transmissions



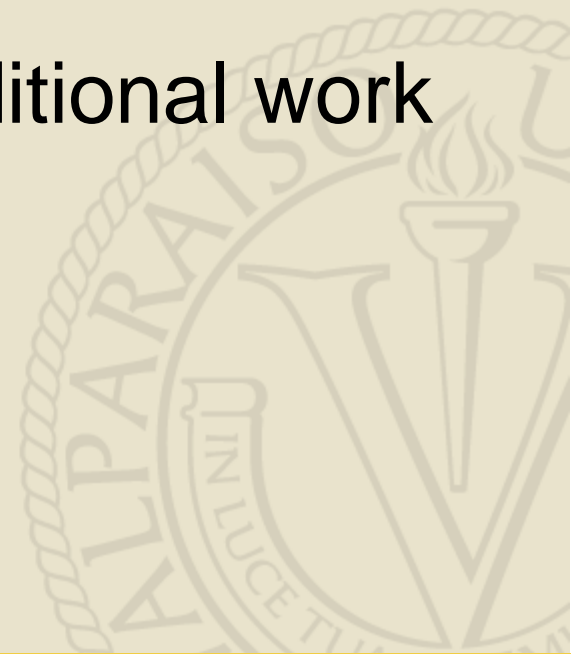
# Recruiting Logistics

- Faculty
  - Temperament and timing
- Current students
  - Personal contact
  - Colloquium events
- First year students
  - Letter of invitation
- Balancing the teams



# Scheduling Logistics

- Year long commitment
- 1 S/U credit per semester
  - (no teaching load credit)
- 1-2 hours of meetings plus additional work each week



# Seven week cycles

- Understand the problem – confusion
- Build conjectures – frustration
- Proving theorems – excitement
- Sharing results – satisfaction



# Presentations

- Technical report
- Undergraduate colloquium
- Celebration of Undergraduate Scholarship
- Conference presentation
- Paper publication

