Reaching Higher

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Today’s presentation

● What is Data Science?
● Requirements for the Data Science Certificate?
● Growth projection and salary for Data Scientists
● University Honors Program
● Department Honors Program
● The Good and Bad of Honors
● How about a minor?
● Questions
What is Data Science?

- Data scientists extract meaningful insights from data using:
  - statistics
  - algorithms
  - programming skills

- Data scientists use data to answer questions like:
  - Will this person renew their subscription?
  - What kind of car is this person likely to buy?
  - Is this a picture of a cat or a dog?
Requirements for Data Science Certificate

● Although the certificate is open to all majors, it is easier for CS majors to earn because of the significant overlap in requirements

● Requirements:
  ○ **CS 2435**: Introduction to Scientific Programming (Programming in Python)
    ■ CS 2440: Computer Science II can be a substitute
  ○ **Math 2240**: Linear Algebra
    ■ Required for CS major
  ○ **Stat 3850**: Statistics
    ■ Required for CS major
  ○ **CS 3435**: Data Acquisition and Visualization
    ■ The one “extra” course, but it also contributes to the 120 hours needed to graduate
  ○ **CS 4755**: Applied Machine Learning
    ■ Counts as CS elective (12 hours of CS electives required for CS major)
Growth Projection and Salary

- Because businesses are interested in obtaining data driven solutions, the demand for data scientists is growing significantly.
- According to the Bureau of Labor Statistics:
  - Projected employment growth of 35% for data scientists between 2022-2032
  - Compared to 3% for all occupations
  - Median annual salary in May 2022 for data scientists was $103,500
University Honors Program

● To graduate with University Honors, a student must:
  ○ Earn a minimum of 24 hours of honors credit:
    ■ 9 hours of interdisciplinary Honors courses
    ■ 3 hours of honors courses within the major
    ■ 9 hours of honors courses within any area
    ■ 3 hours of honors thesis/project
  ○ Possess a minimum GPA of 3.45 (cumulative and in honors courses)
● First year students in the honors program live together in an Honors residential community
● Students with less than 45 semester hours can apply to join the University Honors program
● [https://honors.appstate.edu/](https://honors.appstate.edu/)
Department Honors Program

● To graduate with Honors in Computer Science, a student must:
  ○ Earn a minimum of 9 hours of honors credit:
    ■ 6 hours of honors courses in Computer Science
    ■ 3 hours of honors thesis/project
  ○ Possess a minimum GPA of 3.45 in the Computer Science major

● Graduate courses count as Honors courses
  ○ Take Graduate courses to graduate with honors and simultaneously work toward earning the Master’s degree

● https://compsci.appstate.edu/academics/honors
The Good and Bad of Honors

- The bad - yes, it’s more work
- The good
  - Richer, more in-depth educational experience
  - Interested in becoming a faculty member in higher education?
    - PhD required by most institutions
    - Honors provides the opportunity to write a thesis
  - Interested in becoming a Researcher in academia or industry
    - Honors provides the opportunity to perform research under the guidance of a faculty member
Recent Honors Thesis

Will O’Brien - A Framework for Neural Network Training on Honey Bee Image Data using Active Learning
Recent Honors Thesis

Jenny (Chau) Ly - LY86-64: Implementation and Evaluation of a Y86 Browser-Based Simulator
How about a math minor?

- Because of the overlap in CS and MAT requirements, **CS majors can earn a minor in Mathematics with as little as one extra course**
  - CS requires some math courses that can also count toward a math minor
    - MAT 1120: Calculus with Analytical Geometry II
    - MAT 2240: Introduction to Linear Algebra
  - MAT 4310: Numerical Methods counts as a CS elective and toward the math minor
    - MAT 2310: Computational Mathematics Prerequisites counts toward the math minor
      - This is the one “extra” course (but not really extra because it also counts toward the 120 hours to graduate)
- Other minors attractive to CS majors include
  - Cybersecurity
  - Physics
  - Business
  - Japanese
Department Fast Facts

- **Academic Programs**
  - Bachelor’s of Science, ABET accredited, 600 students, 110 graduates/yr
  - Master’s of Science, 25 students, 10 graduates/yr
  - Data Science Certificate, 30 students

- **Engaged Faculty**
  - 19 funded grants, > $5 million over last 7 years
  - 20 faculty members

- **Program began in mid 1970s, became department in 1998**
Questions?

● Also don’t forget to visit these rooms:
  ○ **Beyond the Bachelor’s in room 318**
    ■ Earn a Master’s degree with just one extra year of study!
  ○ **Undergraduate Program in room 310**
    ■ Learn why you should get your Bachelor’s degree in CS here at App State
  ○ **Student Success in room 327**
    ■ Extra curricular activities help our students succeed!
    ■ Get the student perspective of our program!
  ○ **Student Research Lab in room 312-W**
    ■ See what research some of our students are working on!