



The Emerging Scholars Program (ESP)

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Goals

- Increase the number of female Computer Science (CS) majors
- Focus on higher-level problem solving, rather than technical details or coding
- Expose students to a variety of CS topics early in their education
- Create a network of undergraduate women interested in computers and technology

ESP at Columbia

- The **Emerging Scholars Program (ESP)** began in Spring 2008 with six participants, one Peer Leader, and one Assistant
- Seed fund grant received from **NCWIT** in Summer 2008
- Currently two coed sections of 8 participants each (gender balanced)
- Weekly, 1-2 hour group meetings in addition to regular class

Student Quotes

- “I loved it, learned from it, and enjoyed my time. Even people who are not interested in computer science would find these workshops interesting. **It’s about problem solving** and looking at things in a new light.”
- “It was **extremely rewarding** to participate in something in which I not only found academic value but also social and recreational value.”

Student Leadership

- Peer-Led Team Learning (PLTL) involves students working cooperatively in small groups, led by trained undergraduate peer leaders
- Special emphasis is placed on solving problems as a team, and making the activities fun
- ESP sections are led by a junior or senior CS major who presents topics, problems, and directs the discussion
- A sophomore or junior CS major assists the leader and provides feedback about the materials

Results

- **57 students** have completed ESP in nine different sections
- From the first five semesters, of the students who have declared majors, 45% of them have declared CS
- The majority of students rated their peer leaders as “**fantastic**” and would “**definitely**” recommend ESP to other students
- One ESP participant has gone on to win Google’s Anita Borg Memorial Scholarship
- Two ESP assistants have gone on to receive CRA-W summer research positions; one ESP leader now works full time at Microsoft

ESP Topics

Designing and communicating algorithms
Decision trees
Encoding & encryption
Natural language processing
Biometrics
HCI and Information Visualization
Graph Theory
Ethics of technology, policy-making decisions