

# Undergraduate Education in Computer Science

Crafting a Vision  
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Patricia and Richard Lawson

State of the Department

Through the decade  
1997--2007



Lawson building dedication

# State of the Department

## Through the Decade

	Fall 1997	Fall 2007
FTE	28	38.88
UG Enrollment	726 (1:26)	454(1:12)
Female		7%
URM		5%

# State of the Department

## Through the Decade

Ranking by	Fall 1997	Fall 2007
US News	22	18
Publications	4 [NRC, 1993]	9 [ACM]

# State of the Department

## Through the Decade

	Fall 1997	Fall 2007
Research Expenditure (RE) (/FTE)	\$3.73M (133K)	\$6.92 [05-06] 182K: Actual

133K in 1997 is 165K when adjusted for inflation.

Source:

<http://www.westegg.com/inflation/>

# State of the Department

## Through the Decade

<b>Area</b>	<b>one faculty to one main area</b>
<b>Information Security</b>	6.00
<b>Programming Languages and Compilers</b>	6.00
<b>Graphics, Visualization, and Geometric Modeling</b>	4.50
<b>Databases</b>	4.25
<b>Networking and Operating Systems</b>	4.00
<b>Theory of Computing and Algorithms</b>	4.00
<b>Computational Sciences and Engineering</b>	3.13
<b>Distributed Systems</b>	2.00
<b>Software Engineering</b>	2.00
<b>Information Retrieval, Machine Learning</b>	1.75
<b>Bioinformatics</b>	1.25
<b>TOTALS</b>	38.88



## Elements of a Vision

# Elements of a Vision

Academic offerings

Research strengths

Diversity

Outreach

# Academic Offerings: Undergraduate [1]

High quality

Flexible

Attractive

Relevant

Last major overhaul: 1997-98.

CS 180 re-designed in November/December 1997.

## Academic Offerings: Undergraduate [2]

How do we improve retention? [Current dropout rate: ~53%]

Are we employing innovative teaching methods?

How do we encourage our students to make use of opportunities for study abroad?

An approved Study Abroad experience must satisfy the following:

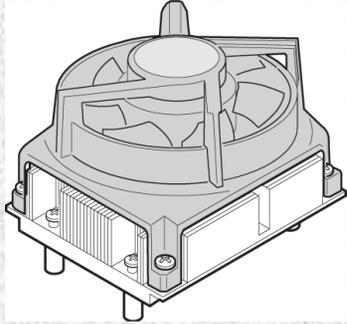
- Must be at least one semester in duration and must take place outside the United States.
- Must consist of taking courses and/or working on a research project.

## Academic Offerings: Diversity

- How do we increase diversity of the student body and faculty?
- Is our academic and social environment conducive to making minority groups welcome?

## Academic Offerings: Outreach

- How do we further improve our already excellent outreach program?
- Should we, and if so how, use [revised] CS177 to advertise CS to high school students?



Intel Quad-Core Xeon 5300

# Proposed Initiatives

## The Multi-core initiative

Single CPU paradigm being fast replaced by multiple-CPU and multi-core CPUs.

Should programming for multi-core processors be brought down to freshman/sophomore level?

How should the new paradigm be reflected in the entire curriculum?

## Multi-disciplinary specializations

Should we consider multi-disciplinary specializations as a way to help students select one or more paths through the curriculum?

What should be the specializations?

- Interdisciplinary specialization in Software Engineering currently under consideration.

# Digital Entertainment

Computer Science has made significant inroads into the entertainment industry: gaming, films, music, sports, etc.

Should we consider a joint degree, or specialization, in Digital Entertainment in collaboration with ECE? And other departments?

- Interdisciplinary specialization in Digital Entertainment currently under consideration.

## 5-Year Integrated Masters Degree

Would a 5-year integrated Master's degree program be an effective way to improve (a) the balance in and (b) the size of our graduate program?

Should we consider a joint degree or specialization in Digital Entertainment in collaboration with ECE? And other departments?

Thank you!

Questions?