AIChE Alignment Activities

NAE Workshop December 6, 2018

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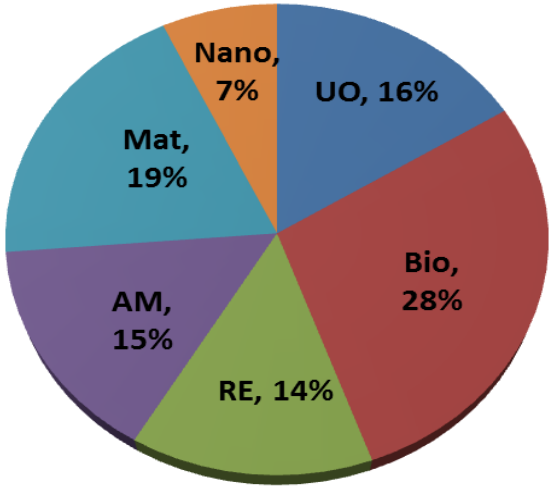
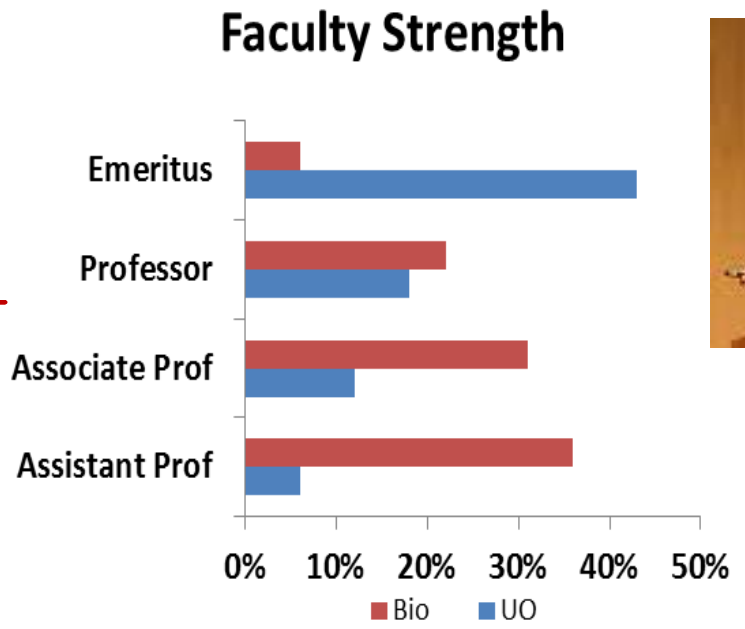
AIChE activities

- 1. Plenary session at 2013 AIChE Annual meeting (proposed by John Chen) on shift in faculty expertise and industrial needs
  - Results: Survey of ChE departments shows marked shift in expertise away from core subjects to newer fundable areas—biotechnology and nanotechnology, leaving misalignment with industrial needs after surveys of petroleum, chemical, and pharmaceutical industry leaders
- 2. AIChE/NSF workshop in 2015 following more comprehensive survey
  - Results: Very large survey (13,000 requests), only 4 % return. Committee interpreted results, offered recommendations for students, faculty, industry, government, and professional societies to address various alignment issues
- 3. CCPS initiative on process safety education

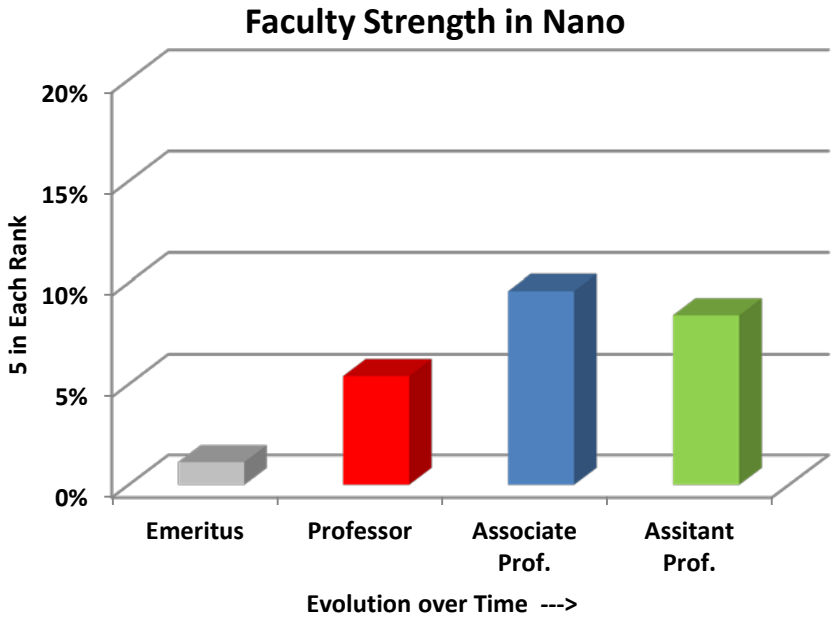
John Chen's 2013 survey showed changes in academic research focus.

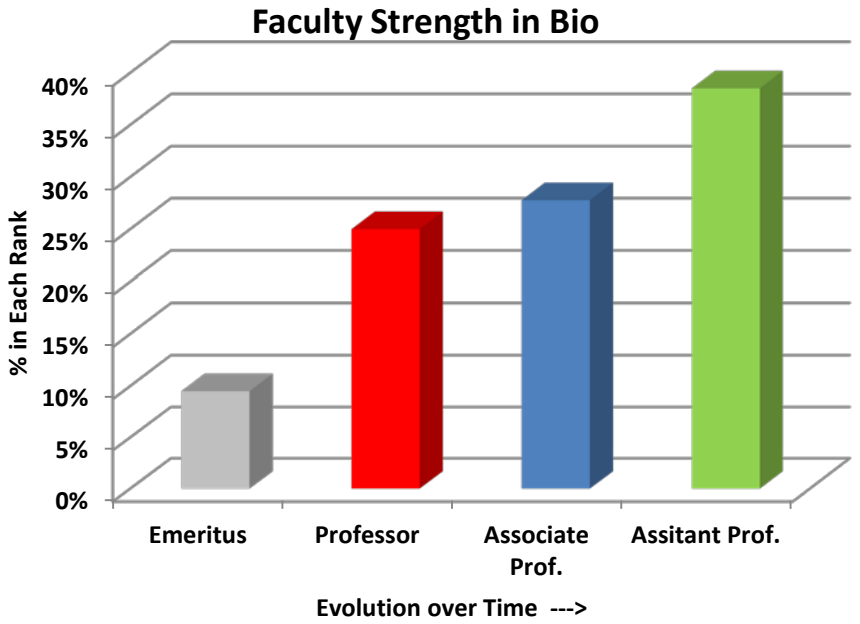


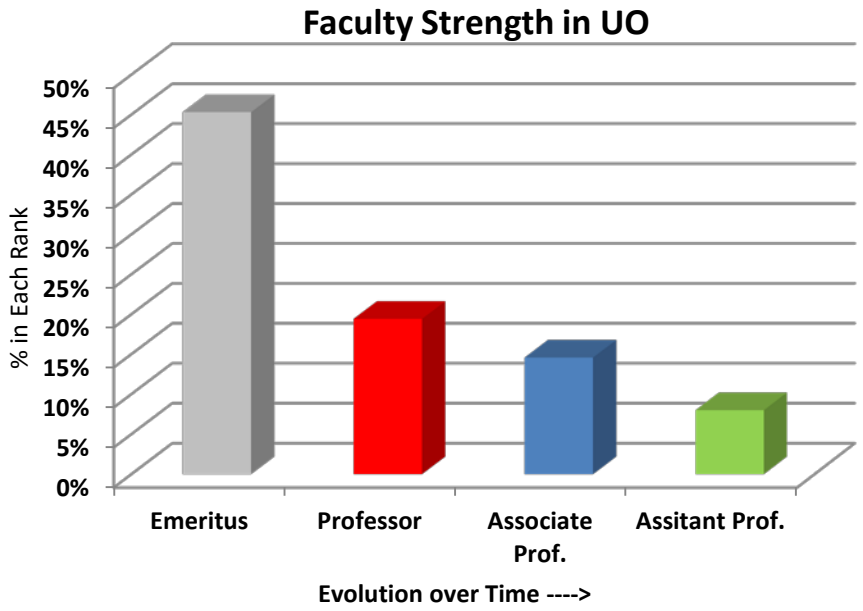


UO	Bio	RE	AM	Mat	Nano
Unit Ops Thermodynamics Transport Separations	Biotech Medical Science Life Science	Rxn Engineering Kinetics Catalysis	Analysis/Modeling Simulation Process Control	Mat Science Surface Science Polymers	Nano Technology Nano Applications

Evolutionary Trend ?







AIChE alignment issues

- **Question**: what will our faculty look like in the future?
- Faculty members with expertise in the core areas of chemical engineering (most needed by industry) are aging out of the profession
- Newer faculty members take post-docs in their research area (especially in bio) to get started early on their research
- Faculty are being hired predominantly in fundable research areas, not the core areas needed by industry
- Very few faculty members have industrial experience (although note Purdue) and many have no engineering education (e.g. chemists)