Talk about graduate studies (in the US and at WPI)

Joseph E. Beck

josephbeck@wpi.edu

Worcester Polytechnic Institute

About me

- Informal
  - If you have questions, just ask

- Straightforward
  - Will give good and the bad
  - I'm probably not who WPI would have chosen as their representative :-)

You might want to think about graduate school if…

- If you think you want to be a scientist

- If you find yourself cutting classes to do research

Graduate life in the US

- A bit different

- Funding model

- Relationship with advisor

Getting a PhD in the US

- Typically 5 to 7 years (really)

- But, have a fair amount of flexibility
    - "busy but unscheduled"

Typical process

- Do coursework for two to three years

- Do research while performing coursework

- Work on finding a large dissertation problem

- Solve it and write it up

Interesting issues with family planning

Typical funding approach

- Tuition for graduate students is expensive ($20k to $40k → 850,000 to 1.7 mil php)
  - But in the sciences, most students don't pay it

- Two common forms of supporting students
  - Provide about $2,000 a month stipend
    - (don't convert to php, it's enough for a modest life)
  - And cover tuition

WPI

Research Assistantship

- A faculty member has a grant to support 1 or more students
  - Students are expen$ive
  - Cost $55,000 (WPI) or about $90,000 (CMU)

- Faculty has moderate amount of control over the student
  - Different model than my understanding of PI
  - Maintain a good relationship!

Teaching Assistantship

- Provided by the department

- Help teach 1 or more classes each semester

- Different models
  - Some places you are a TA for one semester or for your first year
  - Others it is a permanent role

How to get an assistantship?

- Research Assistantship – impress a faculty member
  - Can write to someone, but explain the fit *quickly*

- Teaching Assistant – impress the department

Life as a grad student

- At first, very structured
  - Coursework, advisor is (typically) closely directing research (a very broad spectrum)

- Later, much less direction
  - **Find** a good problem to work on

  - Professor Manuela Velloso gave a talk on "how to be a good advisor" (from memory) at AAAI

What do you do post graduation?

- If you want an academic post, a post doc somewhere
  - About 90% of faculty hires did a post doc
  - Basically 1 to 3 years of additional training
  - Typically at a different institution

- Or work in an industrial research lab

How did I pick this path?

- I didn't

- Was all set to join a small AI research firm
  - September 11 attack disrupted their hiring plans (and everyone else's)

- So I did a post doc :-)

Faculty positions in the US

- Very hard to get tenure stream position
  - Many new positions are for part-time lecturers (not where you want to wind up)

- Took me 8 years post PhD
  - Took Ryan Baker 4 years

- May be easier if you wish to return

Some very good students here

- Was impressed at presentations last year
  - Both at conference and local talks

- Want to recruit some to come to WPI :-)

Worcester Polytechnic Institute (WPI)

- School focusing on science, math, and engineering

- Located an hour from Boston

- School philosophy is to focus on a few areas and be strong (purposefully not a university)

Employment Prospects: WPI

- 2010 Payscale.com: WPI ranks among top 10 universities that produce the best paid graduates

- 2008 Forbes.com: #9 for mid-career salary

Studying Computer Science at WPI

- MS and PhD programs
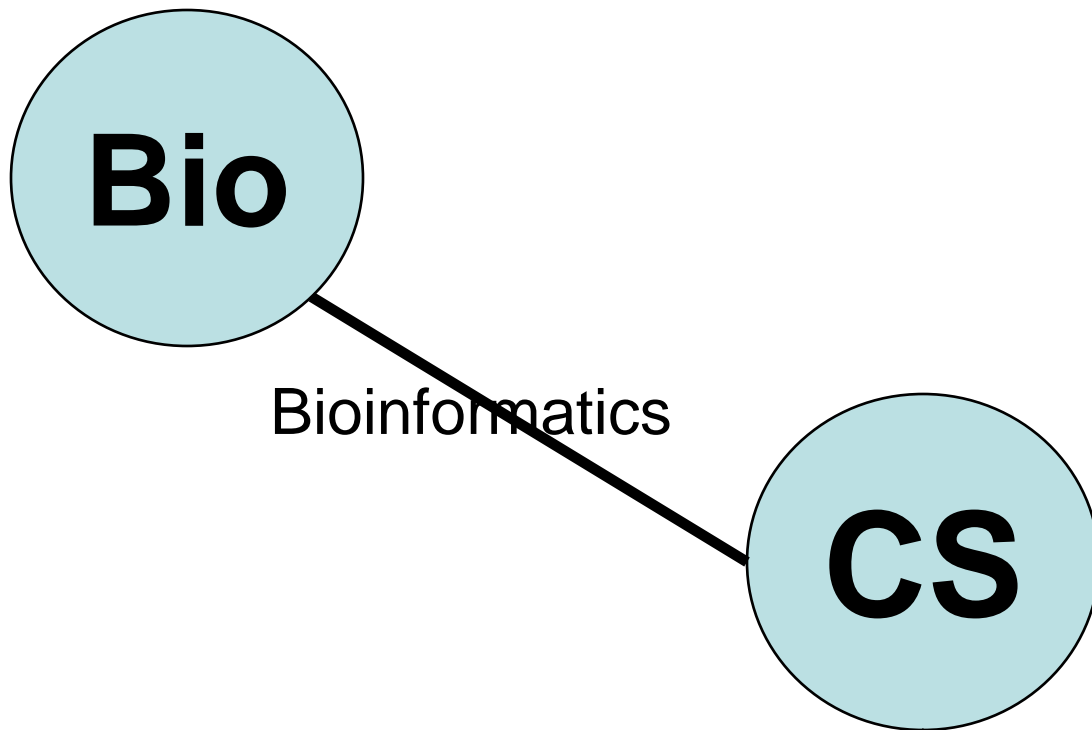
- Have had some interesting recent hires

Some reasons to study in the US

- Different perspective on research

- Broaden your contact network
  - Many faculty from Carnegie Mellon and MIT
  - Have good contacts there

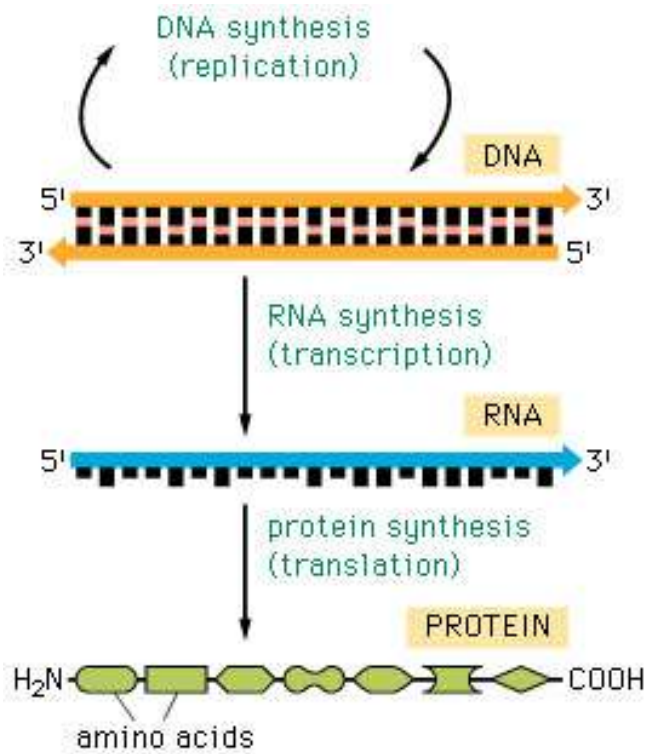# WPI CS has been collaborating with several departments

Graduate Programs in BCB
developed to address increasing need both in industry and academia

- BS/MS

- MS

- Ph.D. (we are designing a joint Ph.D. program with UMASS Medical School)

- Graduate programs combine:
  - Research
    - MS theses or Internships, and PhD Dissertations
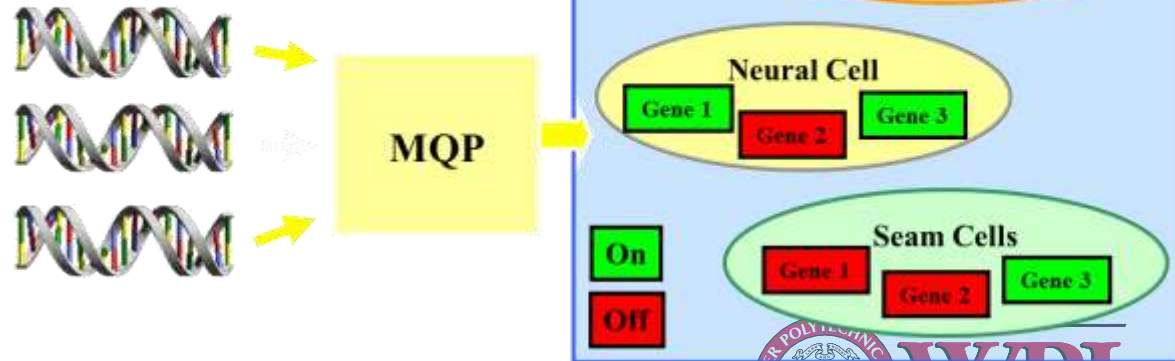 - Coursework in BCB, Biology, CS, Math, and professional ethics
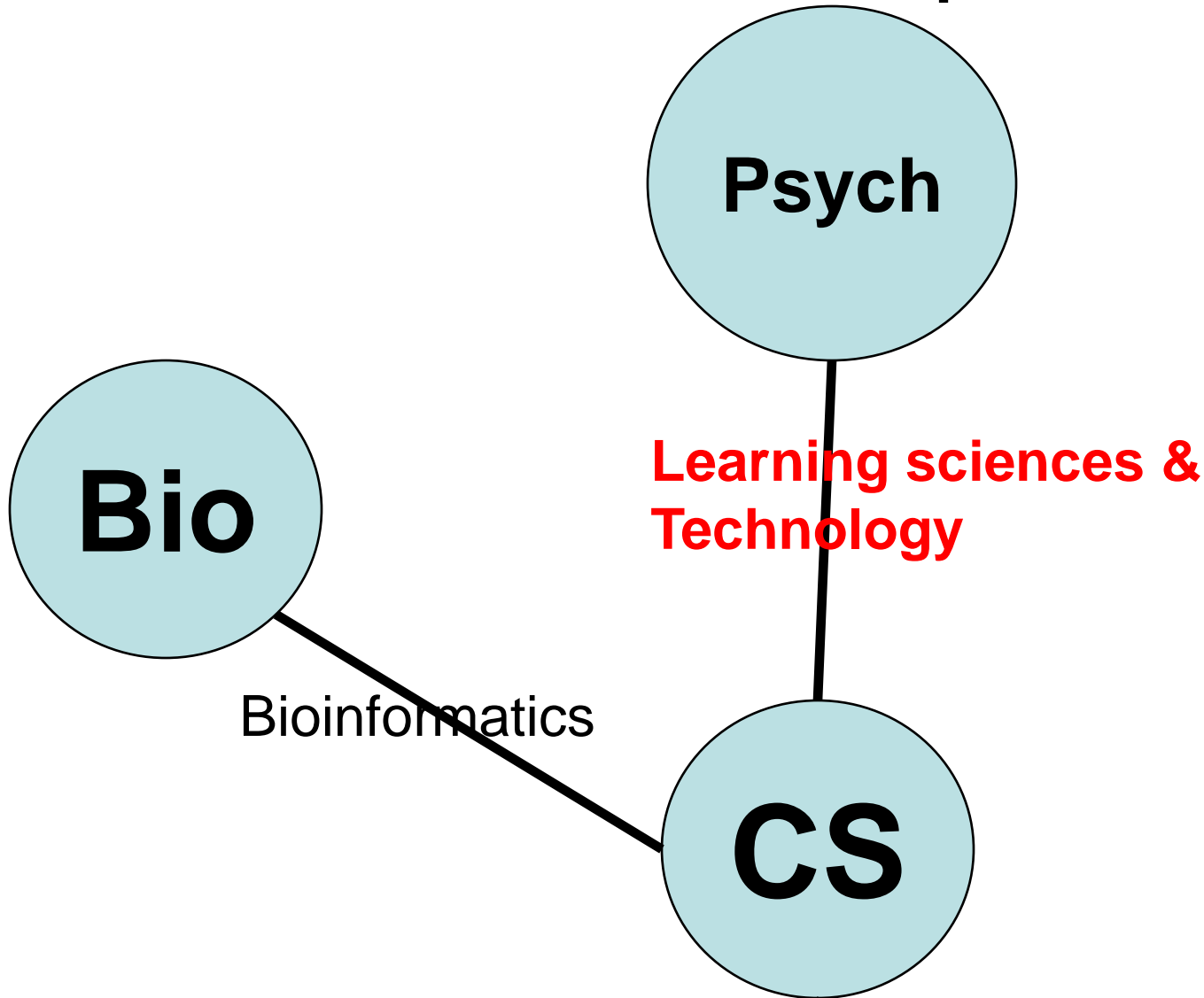
Discover DNA patterns that describe the control mechanism used by cells to 'turn on' or 'express' genes

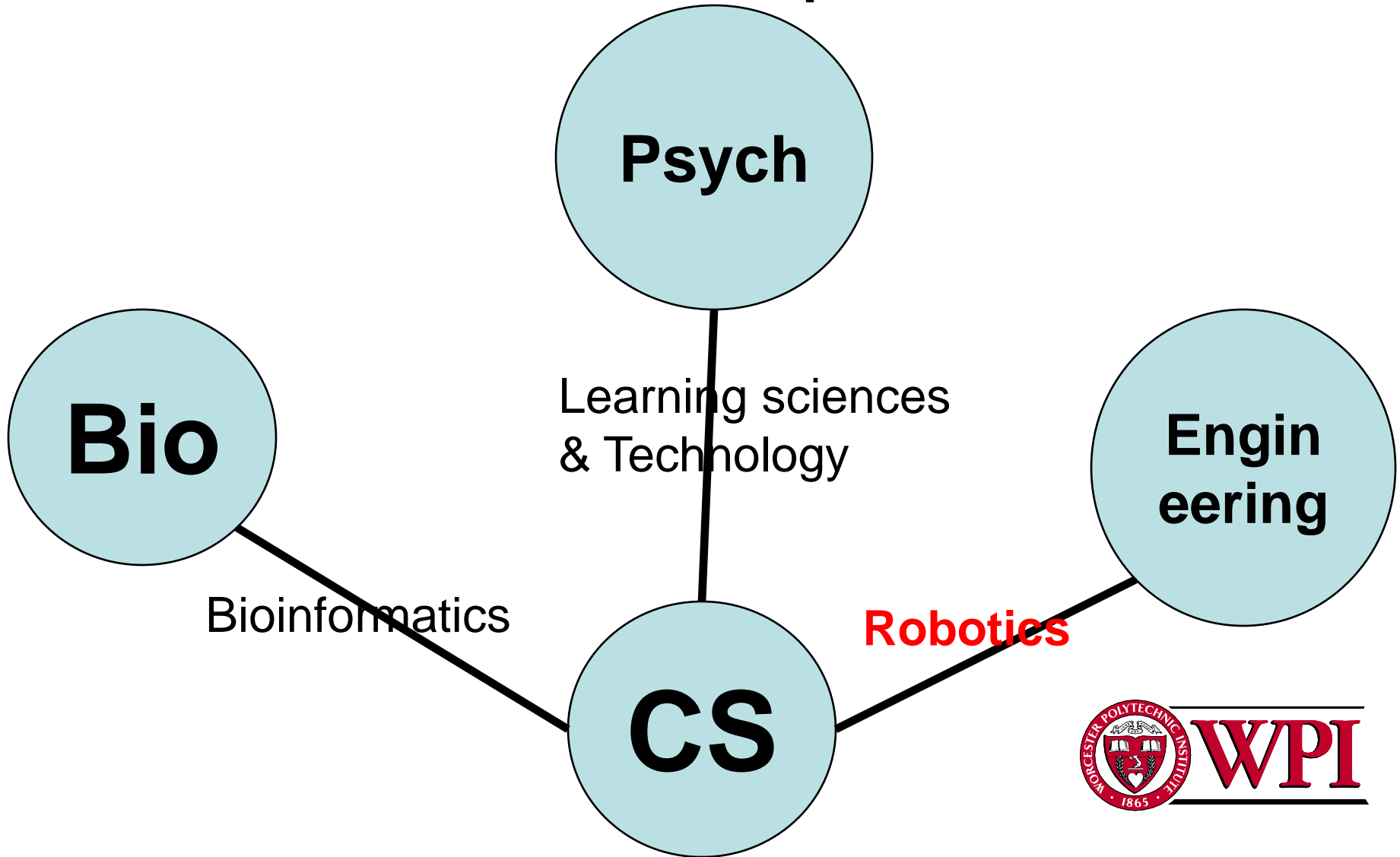# WPI CS has been collaborating with several departments

Learning Science and Technology

- Collaboration of Psychology and Computer Science

- How can we use technology to understand and improve learning?

- (we'll also be looking for faculty next year)

WPI CS has been collaborating with several departments

Psych

Bio

Learning sciences
& Technology

**Engin
eering**

Bioinformatics

CS

Robotics

Robotics

Accredited

ABET

Engineering
Accreditation
Commission

Research

- Human-Robot Interaction

- Manipulators

- Medical

- Autonomous Systems

- Controls

Funding: NSF, NIH, NASA, DOD, DOJ, Industry

Areas WPI CS is very strong

Area	MS	PhD	Degree in
Learning Sciences	•	•	Learning Sciences, CS
Robotics	•	•	Robotics, CS
Bioinformatics	•	(in progress)	Bioinformatics
Security	**•**	**•**	**CS, specialization**
Databases	**•**	**•**	**CS**
Games	**•**	**(CS)**	**IMGD, CS**

If interested…

- I'm available to chat (generally during the day)
  - Through June 6
- If we chat and you decide to apply – let me know
- josephbeck@wpi.edu
- www.cs.wpi.edu

- **Sweet San Pedro: sweetsp@gmail.com**
  - **Ateneo → WPI**