

Ventura College's biotechnology program

Bill Thieman,
Biotechnology Program Originator (96)
Faculty (retired)

What are the (biotech program) issues?

- All courses transfer, so it costs nothing to retain it co-listed as biology/biotech
- VC has never had to cut a class in the biotech program due to low enrollment
- Industry experts can teach if co-listed as Biotech and Biology
- Meets all 3 CC missions

Which biotech companies do we work with?

- Amgen*
- Ceres
- Baxter
- Technical Associates Inc
- **Ventura Co Sheriff's Crime Lab**
- DAKO
- BioSource/Invitrogen*
- Seminis
- Biopool*

We have program graduates at most of these companies

Integrity Biosolutions

How did we build it?

- 1997 **National Biology Teachers Award** for outstanding Plant Biotechnology
- 1997,2000 **Student Success Award**, CCCOC
- 1995,1996 **NSF ILI grants**
- 1996 **Hansen Trust grant**
- **1998 Biotech Center**
- 2000 **NSF National Center Co-PI**
- 2003, 2004 **USDA grants**
- **2005 IDRC, biomanufacturing**
- 2005 **WIB, Displaced Workers Biotech Training**
- 1997-2007: **Tech Prep and other local center grants**



NO EQUIPMENT COST TO THE COLLEGE!

VC biotech's record

- Program serves student needs
- Nationally recognized plant and general biotechnology programs
- 2 NSF grants, Amgen grant, Hansen grant, statewide biotech center, regional center, DOC, USDA, NSF, VTEAII, WIB grants
- Sustain: Industry speakers series, Articulated programs w/HS's

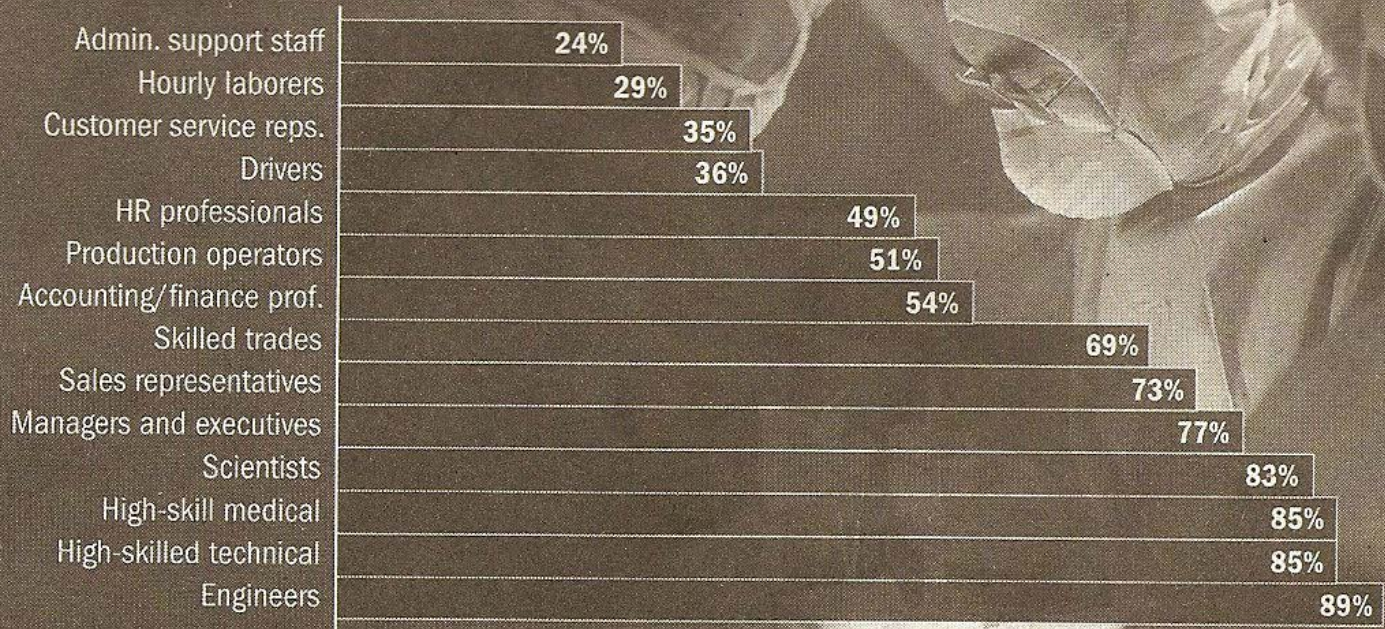
13 of 18 high schools articulated!



High-skill tech's in high demand

Skills shortage

Of the 52% of organizations reporting difficulty filling specific job categories, here are the job categories they find most challenging*



* Chart represents "Somewhat difficult" and "Very difficult" responses. "Not applicable" responses were excluded from this analysis. Only organizations that were having a difficult time recruiting for certain types of jobs were asked this question.

Source: SHRM

Photo: GETTY IMAGES/Maximilian Stock Ltd

OCCUPATIONAL OUTLOOK HANDBOOK

2012

Quick Facts: Chemical Technicians

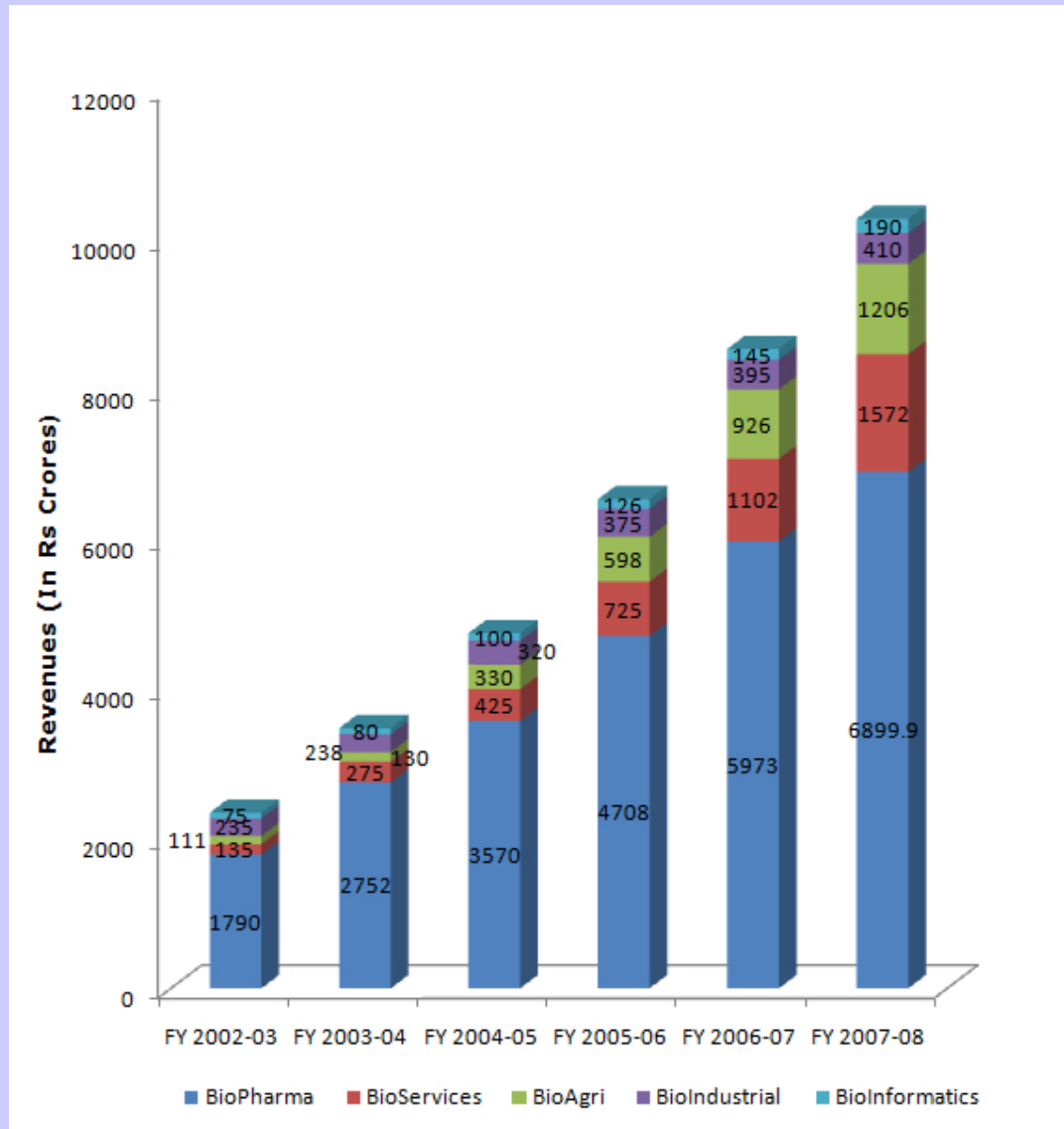
<u>2010 Median Pay</u>	\$42,040 per year \$20.21 per hour
<u>Entry-Level Education</u>	Associate's degree
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Moderate-term on-the-job training
<u>Number of Jobs, 2010</u>	61,000
<u>Job Outlook, 2010-20</u>	7% (Slower than average)
<u>Employment Change, 2010-20</u>	4,100

Quick Facts: Medical and Clinical Laboratory Technologists and Technicians

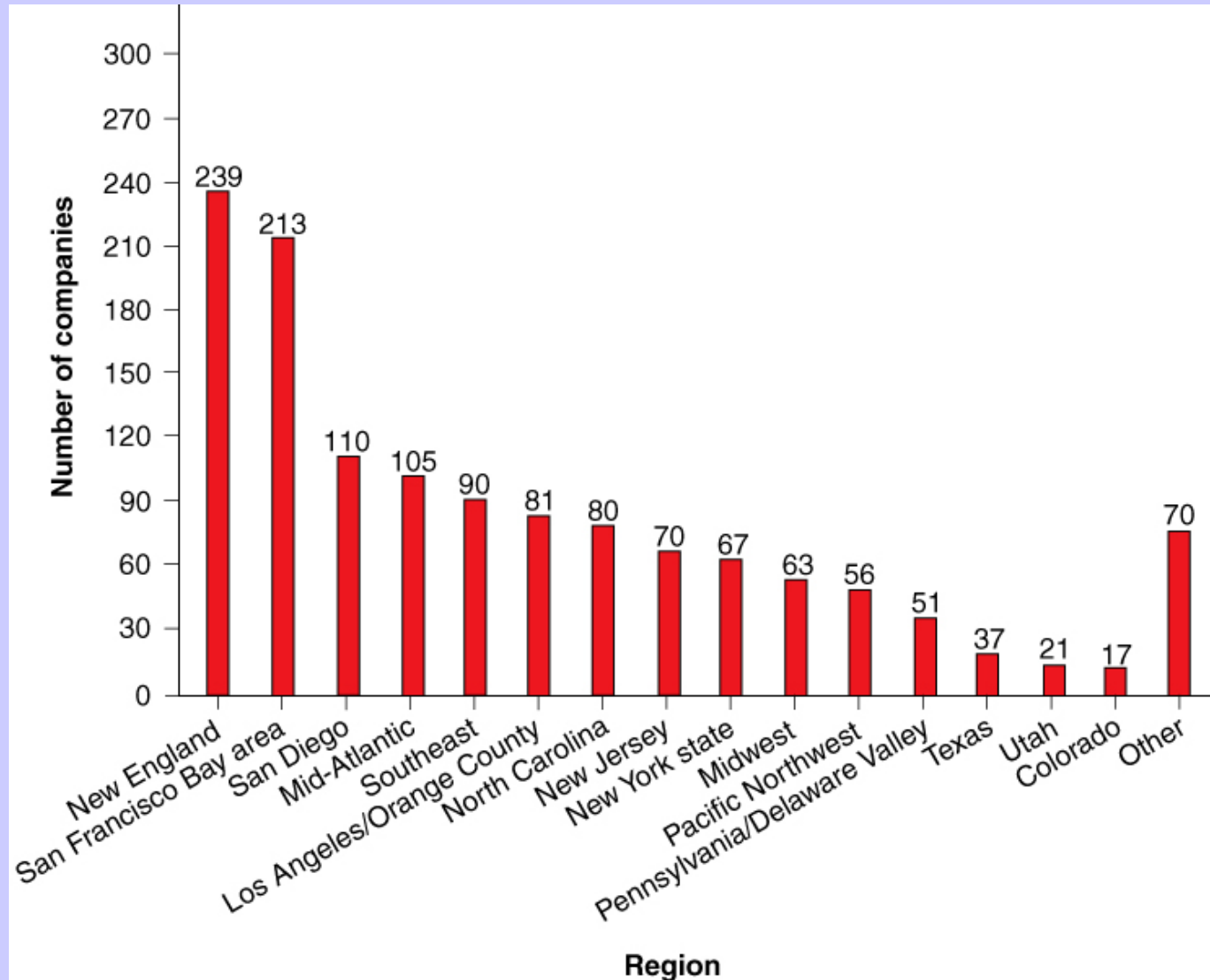
<u>2010 Median Pay</u>	\$46,680 per year \$22.44 per hour
<u>Entry-Level Education</u>	<u>See How to Become One</u>
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	None
<u>Number of Jobs, 2010</u>	330,600
<u>Job Outlook, 2010-20</u>	13% (About as fast as average)
<u>Employment Change, 2010-20</u>	42,900

Jobs have been listed even during recession
(only lack qualified applicants)

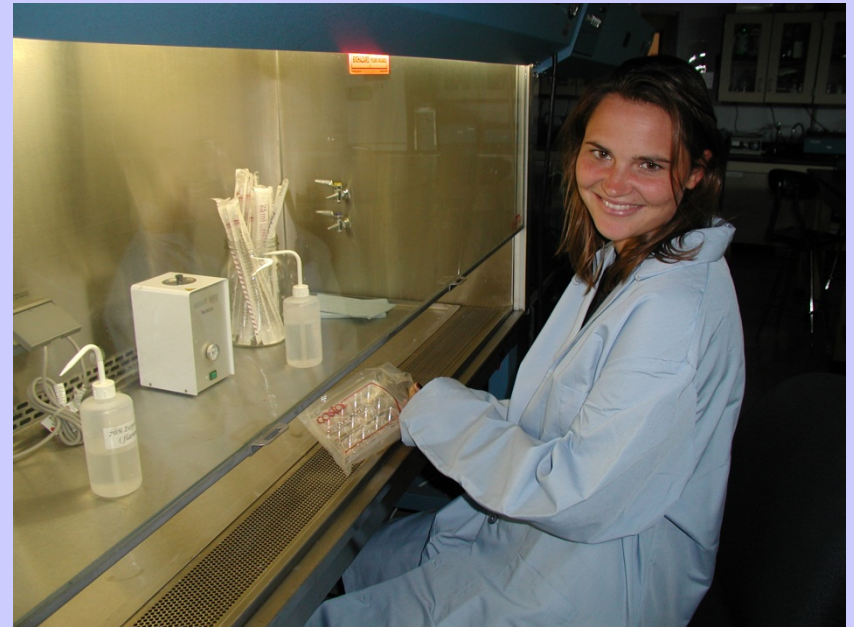
Biotech workforce has grown by 8-17% per year and could top 1million by 2015 (BIO, 2012)



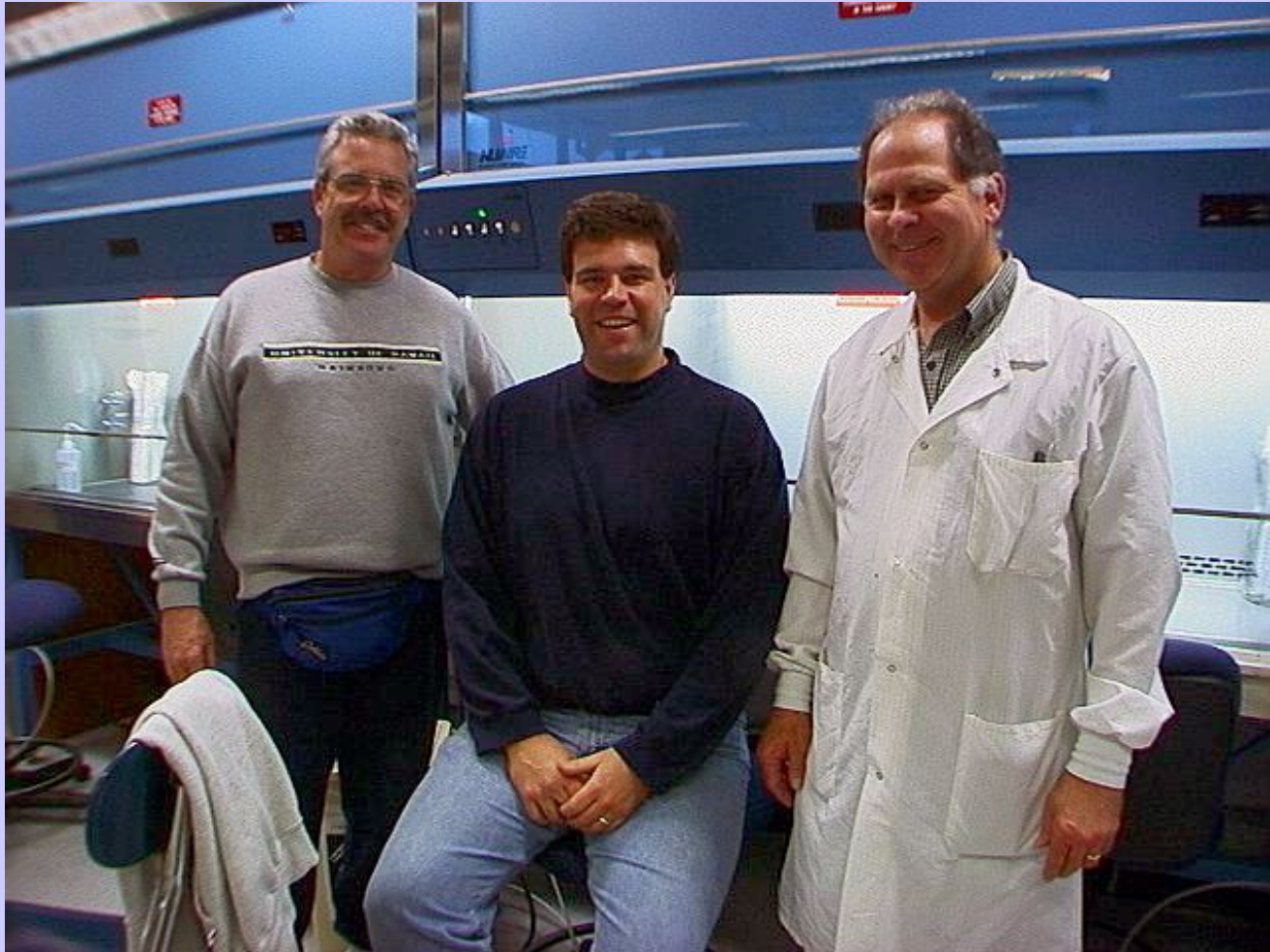
The majority of biotech is in CA



The pride of our efforts are stories like this
(any employed grad is a success story)



Some of our training occurs at the college



Prof. Terry Pardee, Jeff Nelson, Amgen, and graduate Patrick C., in VC Lab

Industry is our partner

Amgen, Thousand Oaks



Our training is hands-on



Our lab is well equipped through industry donations and grants



What's in it for VCCCD?

These are all new taxpayers!



Why Certificate/proficiency Award?

- Ten times as many “tech” placements as “research”
- Placement at local companies may mean “entry level;”
- Turnover is highest at entry level
- Greatest industry participation in training is for this level
- Focus is on pertinent skills, allowing new courses innovations

Ventura College Advisory Group Recommendations implemented

- Good Lab Skills
- Good Team Player
- Scientific Communication Skills
- FDA familiarity
- Microbiology/aseptic Training

What does VC require?

Proficiency Track (17 units):
Certificate Track: (26 units)

Biol 1/1L Principles of Biology/Lab	4
Biol 30 Intro to biotech and molecular biology	3
Biol 31 Introduction to Biotechnology Methods	2
Biol 18 Human Heredity	3
Chem 21-21L Introduction to Organic and Biochemistry Lab	5
total	17

All courses are transferrable

Moorpark by comparison

none count for AS degree

• Biology M10-DNA biology	3	units
• Biology M10L-DNA biology lab	1	
• Biology M11A Intro Biot and MB	4	
• Biology M11B Intro Biot and MB II	4	
• Biology M12A Process Supt	2	
• Biology M12B Manuf. QC	2	
• Biology M12C Manuf. Cell culture	3	
• Biology M12D Manuf. Purification	2	
• Biology M12E Govt. regulations	2	
» Total	27	

Questions?

