WELCOME
AND
INTRODUCTIONS
CAREER LADDERS PROJECT

Fosters educational and career advancement through research, policy initiatives and direct assistance to community colleges and their partners.
• Scorecard
• Salary Surfer
• Launchboard
• Cal-PASS Plus

www.cccco.edu
CA: Career Pathways, Regional and Sector Focus Continues

• **Doing What Matters for Jobs and the Economy**
  – Reorganized CCC EWD into regional sector approach
  – New infrastructures and roles launched (SB1070 collaboratives; system of state and deputy sector navigators)
  – Prioritized sectors of importance to regional economies for investment

• **Career Advancement Academies**
  – Pathways to high skill/high wage careers for low-income young adults w/multiple barriers to higher education
  – CCCC0 invests $29M; 32 colleges across 4 regions; 2007-2014
  – Phase 3 funded for 2013-14; focus on scaling, institutionalization, sustainability

• **SB1070**
  – To be fully funded for 2014-15 FY – at full $48M rather than expected $24M
  – CAAs to be funded via 1070 in 2014-15 FY – though not yet clear distribution mechanism
Is our system trending the right way?

10 year decline in “CTE as a % of FTES”

Source: CCCCO MIS
State apportionment not proportionally being used on CTE.
Your region’s 10-year trend in career technical education (CTE) portfolio as % of FTES
Funds for CTE

- Concern about high cost programs and relative decline in FTES
- Proposal from CA EDGE Campaign and Career Ladders Project with Department of Finance
- $50 million proposed in 2014-15 state budget to increase capacity in CTE (May Revise; Assembly and Senate concurred)
- To be distributed to regions via regional consortia
- Opens discussion re: augmentation or tiered funding for high cost programs

Career Development and College Preparation (CDCP)

- CDCP (non credit) courses to equal the funding rate for credit courses.
- Effective beginning in 2015-16
- Allow the colleges one year to plan before the rates change
CA: Integration and Alignment

• Regional integration of adult ed and comm colleges
  – Move adult learners to college and careers; attention to transition and pathways as key elements

• CA Career Pathways Fund (AB594 Steinberg)
  – $250M in 2013-14 budget – active consideration of 2nd round
  – Focus on Work-Based Learning connected to K14 pathways;
  – Builds on momentum with HS pathways – including expansion of Linked Learning and California Partnership Academies across state
  – 2 East Bay applications funded—I80/880 & Diablo Gateways to Innovation
    • involving all colleges and majority of school districts in the region.
    • Regional total of $23M
FEDERAL: Support for Career Pathways

Workforce Innovation and Opportunity Act (WIOA)

- Bicameral, bipartisan reauthorization bill introduced this week
- Modest increases in funding between now and 2020
- Moves toward career pathways strategies to improve skills and prospects for low-income youth and adults.
- Improvements include:
  - Increased focus on comprehensive programming for youth without HS credential;
  - Wider range of services, including transitional jobs, for low-skill, low-income adults and individuals;
  - Strong accountability provisions that reduce disincentives to serving high need participants;
  - Support for integrated education and training and concurrent approaches to adult ed with focus on increased transitions to and success in PSE.
Last Round of TAA-CCTG

• DOL, $2B over 4 years.
• Round 4 in process- $500 million
CA: Foundation Support for Career Pathways

James Irvine Foundation

• Continuing investments in Linked Learning HS Districts (WCCUSD; Oakland USD; Antioch)
• Funded the CCC Linked Learning Initiative (CCCLLI) – connect LL HS to CCCs
  – transition from HS to college: early college experiences; counseling/matriculation, assessment, placement; joint pathway development.
• $3.7 million through 2014; under consideration for next stages.

Bay Area Workforce Funding Collaborative

• Has invested over last decade in Bay Area in CCC career pathway bridge programming, contextualized teaching and learning, as well as relevant policy innovations.
• Currently in strategic planning mode to consider next phase of investments
CA: Focus on Apprenticeships

- **Governor and Legislature** both focused on expansion to new sectors; connections to college credit; pre-apprenticeship.

- **Workforce Accelerator Fund**
  - CWIB grants for innovation, including “earn and learn” models and formal apprenticeships

- **SB923 (Pavley) Educational Apprenticeship Innovation Act**
  - Would award competitive grants to promote apprenticeships, pre-apprenticeships, and career pathways among local educational agencies, institutions of higher education, and businesses of importance to local economics.
FEDERAL: Focus on Apprenticeships

President’s goals
- Double number of apprentices
- Transform Registered Apprenticeship for the 21st Century

“Expanding Apprenticeships for Good Middle Class Jobs”
- Fall RFA: $100 million for expansion of apprenticeships. 3 priorities
  - Expand to new sectors (such as health, info tech, adv manufacturing)
  - Connect to college credit and build out pre-apprenticeship programming
  - Scale models that work

Registered Apprenticeship College Consortium (RACC)
- Launched by Vice President Biden this Spring
- Partnership with CCs, accreditors, employers
- Enable apprenticeship graduates to transfer credits to colleges in consortium
- Founding members include Ohio, Wisconsin, No. Carolina systems

Business Investments: Dow, Alcoa, Siemens, UAW, UPS, SEIU, Building Trades
The Alliance for Quality Career Pathways

- National Initiative w/ 10 Alliance States, including CA (AR, CA, IL, KY, MA, MN, OR, VA, WA, WI)
- Framework to define high-quality career pathway systems:
  - Quality criteria and indicators
  - Shared performance metrics to measure and manage success
- National Advisory Group of organizations and experts (including NYEC, WSC, JFF, NSC, CORD, CEWD, Working Poor Families Project, Abt Associates, ConnectEd, and CTE state directors.)
- Led by CLASP
- Funded by the Joyce Foundation and James Irvine Foundations
- Advisory to Dept of Labor
- Draft has been circulated; will be issued mid June 2014
Local Control Funding Formula

- Simplifies school funding formula
- Ends categoricals and devolves decision-making to local districts
- Enhanced funding goes to districts with high need students

Common Core

- Emphasis on college and career readiness
- Focus on depth of learning, critical thinking and application of knowledge rather than rote learning
- Ended current NCLB testing and piloting Smarter Balanced Assessment this school year; all districts subsequently.
- Implications for Post Secondary Education and need for alignment.
Basic Skills Initiative funded, but at lower rate

- Assembly and Senate put in additional $5M, including $3M for proven models of acceleration (CA Acceleration Project)

Assessment

- Major project to establish common assessment (C CCCCO grant to Butte College)
- Likely to support multiple measures incl. HS grades/transcripts for incoming HS grads and common assessment for older students
- Not clear yet the alignment with SmarterBalanced Assessment
- EAP will be reformed, likely in line with SmarterBalanced
Applied Baccalaureate

• CCC System Task Force recommends

• SB 850 (Block) Community College Districts: Baccalaureate Degree Pilot Program. Authorizes the Board of Governors, in consultation with the California State University and the University of California, to establish a BA degree pilot program at 15 community college districts. BA degrees offered through this pilot program may not duplicate BA programs already provided by the CSU or the UC.

Concurrent Enrollment

• AB 1451 (Holden) Concurrent Enrollment. Authorizes a community college district and school district to enter into a formal concurrent enrollment partnership and removes state policy barriers to concurrent enrollment under specified conditions.
Lessons Learned: Creating DBS Pathways

Introduction on the work to date
REGIONAL PATHWAYS DEVELOPMENT

- **College Specific Pathways**
  Include employer engagement, connected support, work based learning, bridge and onramps to include high school and adult education students.

- **Link and integrate regional programs, certificates, curricula to more effectively address the workforce needs of industries important to the regional economy**

- **Refine Local and Regional Career Pathways**, mind the gaps and build on college strengths, provide portability, skills acquisition for entry, mid-, and advanced-level workforce.

Regional Pathways address the workforce needs of the region across major sectors; Employers are engaged; Skill gaps are addressed; Increased access and success is measured by college certificates and degrees completion.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Program of Study</th>
<th>Career Pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WHAT ARE THE ENTRY LEVEL CERTIFICATES/COURSES THAT LEAD TO ENTRY LEVEL JOBS?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Middle skill certificates/programs?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Advanced skill certificates/programs?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) Is there alignment of program for transfer to 4-year institutions?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>WHAT KINDS OF JOBS DO THE CERTIFICATES/PROGRAMS PREPARE STUDENTS FOR AT EACH LEVEL?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) What are the associated wages for these jobs?</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>DOES YOUR PROGRAM/CERTIFICATE PREPARE STUDENTS FOR INDUSTRY CERTIFICATIONS?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) What are those certifications at each level?</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>DO THESE PROGRAMS/CERTIFICATES REFLECT DISCUSSION WITH INDUSTRY?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) What are you hearing from your Industry Advisory about programs/certificates meeting current industry demands?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Does the program align with industry recognized certifications that are listed as minimum or preferred qualifications?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) Does the progression of programs/certificates make sense to industry? Does it follow the career progression?</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DOES YOUR PROGRAM DESIGN ENABLE STUDENTS TO BE EMPLOYABLE IN THE FIELD AFTER 1-2 SEMESTERS (I.E. ENTRY LEVEL JOB)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Can students enter and exit the program and continue to progress? Are their barriers to students who stop out to work for a while?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Can someone with entry level experience come into your program at the intermediate level?</td>
<td></td>
</tr>
</tbody>
</table>
Comprehensive Pathways Serve:

- Under-served populations
- Transitioning high school students
- Re-entry populations
- Incumbent workers seeking skills upgrade
• At College X
  – Student identifies with a career path,
  – Enters the program meeting the pre-requisite and/or prepares for the program through an onramp “bridge”,
  – Progression and achievement within the program
  – College/Instructional Faculty often help the students with employment prospects along the way
CTE REDESIGN IN A REGIONAL FRAMEWORK

- In High School, Adult Education, or At College X
  - Student gathers information and completes content related pre-college coursework related to identifies with a career path,
  - Enters the program meeting the pre-requisite and/or prepares for the program through an onramp “bridge”,
  - The Program is designed with stackable certificates and progression toward A.A./A.S./Transfer degrees
  - Successive steps in the program are also aligned with industry credentials and work based learning opportunities
  - Established entry, exit, and re-entry points in the program
  - Progression and achievement within the program and re-entry points into other community college programs.
  - College/Instructional Faculty and regional partners help the students with employment prospects along the way
Sector-Based Career Pathway

- Low Skilled Job
- Intro Skilled Job
- Skilled Job
- Proficiency Skilled Job
- Advanced Skilled Job

Career seeker:
- Prep through HS, AE, CC, other
- Bridge: HS, Adult Ed, CC

Individuals with Recognized Experience:
- Degree/Transfer
- A.A./A.S./Transfer A.A.T/A.S.T
- Certificate of Proficiency

Mid Level Certificate:
- Industry Credential
- Certificate of Achievement

B.A./B.S. and beyond:
- Proficiency Skilled Job

- Skilled Job
- Intro Skilled Job
- Mid Level Certificate
- Entry Level Certificate
- Bridge: HS, Adult Ed, CC
- Career seeker

Low Skilled Job
- Prep through HS, AE, CC, other
- Bridge: HS, Adult Ed, CC

- Mid Level Certificate
- Entry Level Certificate
- Career seeker

- Low Skilled Job
- Prep through HS, AE, CC, other
- Bridge: HS, Adult Ed, CC

- Career seeker
LESSONS LEARNED:
CREATING DBS PATHWAYS (FACULTY PANEL)

Louis Quindlen, Laney College
Arthur Morgan and Dona DeRusso, Contra Costa College
Leslie Blackie, Laney College
LESSONS LEARNED:
CREATING DBS PATHWAYS (FACULTY PANEL)

Louis Quindlen
Laney College
High Impact Pathways Presentation

Laney Machine Technology

Industrial Maintenance Cohort
Industrial Maintenance Pathway
Recruitment is Critical
Starts in Spring with
Laney CTE Open House

Laney’s 16 CTE Programs open their doors to High Schools & CBO’s to display technology
Discuss career opportunities
Stipends for high school teachers and counselors.
Funded CTE Transitions and SB 70
iDesign-ST

Introduction to the Skilled Trades at Laney College in Oakland

iDesign-ST is a 4-week "sampler" course for high school & community college students interested in learning about the skilled trades (ST). This is a hands-on program where you will experience carpentry, welding, woodworking and machining.

If you're interested in learning about a skilled trade, but aren't sure which one to pursue, come take this course. It gives you an opportunity to learn about the excellent career opportunities in these fields. We're especially interested in graduating seniors or others who would like to start career training in the fall.

Dates: June 17 - July 11
- Monday – Thursday (except July 4th week = Mon – Wed)
- Carpentry, Machining, Wood Tech, Welding

Time: 9:00 am – 4:30 pm
Location: Laney College (900 Fallon St. Oakland. BART – Lake Merritt)
Credit: 2.0 units credit
Cost: FREE
Contact: Students, teachers, and others interested in learning more, sign-up for updates at:
http://tinyurl.com/idesign-st-2013

We will notify you when the class is open for registration (enrollment limited to 25).
Questions: Mark Martin at mark.martin@design4x.com / (550) 248.7718

Summer iDesign Skilled Trades

One Project Across Carpentry, Welding, Wood Technology and Machine Technology
Targeted Population: HS Seniors, CC Students trying to figure things out
Open House
Demonstrate Work
Career Opportunities
Schedule Assessment
FAFSA Application
Sample Math & Spatial
Self Assessment

Interview
Review Assessment
Cover Time and Financial
Commitment

Boot Camp
Building the Cohort with
Teamwork Exercises
Graduate IMM Students working
in the trades or internships
Industry Speakers
Contextualization
Math is just a tool, like a wrench or set of calipers.

### IMM Program Outcome
Technical literacy: Students will communicate effectively in the technical language of the maintenance machinist trade, including written verbal, mathematical and computer skills.

### Math Requirements:
Technical Math 220A &B Elem Alg
Technical Math 220 C&D Interm Alg
Technical Math 220 E&F Geometry

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### PROJECT PLANNING WORK SHEET

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>TOOLS</th>
<th>CS/RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center drill hole #2 or #B</td>
<td>#3 center drill</td>
<td>800 RPM to 1100 RPM Actual =</td>
</tr>
<tr>
<td>Drill 5/16 thru hole for 3/8-16 tap</td>
<td>5/16 HS Drill (.3125)</td>
<td>( \frac{60 \text{SFPM} \times 4}{.3125} = 768 \text{ RPM} ) Actual =</td>
</tr>
<tr>
<td>82 deg csk to .375 - .385 diameter</td>
<td>½ 82 deg countersink</td>
<td>( \frac{30 \text{SFPM} \times 4}{.420} = 285 \text{ RPM} ) Actual =</td>
</tr>
<tr>
<td>Tap 3/8-16 threads thru</td>
<td>3/8-16 tap, tap wrench, and spring loaded tap guide</td>
<td>Hand operation</td>
</tr>
<tr>
<td>Center drill hole #3 or #C</td>
<td>#3 center drill</td>
<td>800 RPM to 1100 RPM Actual =</td>
</tr>
<tr>
<td>Drill thru hole for 10-32 socket head cap screw</td>
<td>#2 drill (.221)</td>
<td>( \frac{60 \text{SFPM} \times 4}{.221} = 1086 \text{ RPM} ) Actual =</td>
</tr>
</tbody>
</table>
Intro To Manufacturing

Prepare unemployed and underemployed 18-24 year old for entry level manufacturing jobs

Or

Further education in the skilled trades

Includes

Intro to Skilled Trades course
Math 220A (pre-algebra)
OSHA safety certificate
Food handlers certificate
College & Career readiness
Industry speakers & tours
Work with WIB on job placement

Screening
Math & Reading Assessment
On Ramp to the Skilled Trades
Focus on foundational skills preparation for success in the skilled trades. Students assessing to low for the IMM cohort now have a preparation pathway with contextualized coursework in

- Math 253 Pre-Algebra
- English 201A
- English 208A Writing Workshop
- Wood Technology 211A Basic Computerized Drafting Techniques (Intro to Spatial Reasoning)
- Counseling 207A Career Exploration (Industry speakers and working graduates)
CTE Off Ramp
Contextualized AS Degree Classes

English 1A for CTE (Papers on CTE subject matter)
Math 221 Technical Math
Counseling 230 Strategies for Personal Development

CTE Pathway Program!

- Complete English 1A reading and writing about your careers
- Learn math in a way the applies to your trade
- Complete the Math and English requirements needed for an AS Degree
- Learn how to start and succeed at a job search
- Make Laney College work for you!
First Assignment: Drill Press Planning Worksheet Into a Narrative.

Assignment: Write a personal statement as part of the application for the Gene Haas Machining Scholarships. So far ten students have been awarded scholarships for a total of $15,000.00.

Final Assignment: Read and discuss Our Aging Infrastructure from Pumps & Systems a trade magazine. This will be followed up with a field trip to EBMUD where managers and workers will discuss how they deal with these issues.
LESSONS LEARNED:
CREATING DBS PATHWAYS (FACULTY PANEL)

Arthur Morgan and Dona DeRusso
Contra Costa College
Conducted local employment scan
  - Warehouse workers: 15% growth, $10 – $13 starting salary
  - Warehouse supervisors: 12% growth, $24 – $32 salary
  - Whole Foods opened new warehouse in Richmond

Regional environment to support transportation and logistics industry
  - Road
  - Rail
  - Air
  - Sea
Starting Point

Strong Partnerships

• Contra Costa Workforce Development Board
  • San Pablo One Stop
  • Concord One Stop
• Richmond Workforce Investment Board
  • Richmond Works
  • Richmond Build
• San Pablo Economic Development Committee
• Lao Family Services
• Rubicon

Partners are instrumental with recruitment and job placement
FLOW (Forklift Logistics Operations and Warehousing) Curriculum

• Model after College of Alameda Atlas Program
• Created Program with 6.7 units for local Certificate of Completion

• Credit classes
  • Forklift Operations
  • Warehouse Operations
  • Computer Literacy
  • Personal Development

• Non–credit components
  • Professional Development
  • Basic Skills math and English
Industry Certifications

- Students also receive
  - OSHA 10 certification
  - Hazmat Awareness Certification
  - Forklift Safety Certification
  - National Work Readiness Certification
Agreement with College of Alameda to both offer the basic warehouse/forklift entry level instruction

COA offers a certificate in Transportation and Logistics Administration

Advanced certificates

- COA developing an Associate Degree in Supply Chain Management
- CCC developing a Certificate of Achievement in:
  - Logistics “Lead” / Supervisor (19 units)
  - Import/Export Professional Certificate (12 units)

Homeland Security: Coordination with Merritt
Career Pathway

**FLOW**
(Forklift, Logistics, Operations and Warehousing)
Certificate of Completion (6.7 units)
- Forklift Operation
- Warehouse Operations
- Computer Literacy
- Professional Development
- Personal Development

**Logistics/Warehouse Lead**
Certificate of Achievement (19 units)
- Introduction to Logistics (TBD 3 Units)
- BUS 109 Introduction to Business (3 Units)
- BUS 186 Principles of Accounting (4 units)
- MATH 120 Intermediate Algebra (5 units)
- ENGL 1A (4 units)

**Import/Export Professional Certificate**
Certificate of Achievement (12 units)
- International Business (TBD 3 units)
- International Supply Chain Management (TBD 2 units)
- International Business Compliance (TBD 2 units)
- International Business Documentation (TBD 2 units)
- GEOG 130 Cultural Geography (3 units) or GEOG 160 World Regional Geography (3 units)

Will build program to 12 units by adding credit bearing classes in basic skills and professional development
Homeland Security for sea ports and airports

- **Merritt College**
  - Homeland Security Certificate
  - Homeland/Seaport Security Certificate
  - Homeland/Logistics Security Certificate
  - Seaport Security Certificate
  - Port Security AS
  - Supply Chain AS
  - underdevelopment

- **Contra Costa College**
  - California Association of Administration of Justice Educators model
  - 16 Unit Certificate
  - Topics to include:
    - Emergency Management
    - Homeland Security
    - Written Communication Professional Development
  - Bureau of Security and Investigative Service Facility License
Mapping Process – baby steps
Mapping Process

- Began mapping at first HiP Institute in June 2013
- Regional collaboration broadened understanding of the sector
- Helped to identify gaps
- A cartographers nightmare – constantly evolving
**ACADEMIC PROGRAM OF STUDY**

### UNIVERSITY DEGREE
- **International Business and Logistics Transfer - CSU Maritime**

### A.A./A.S. DEGREE / TRANSFER
- **International Business, AA**
- **Automotive Technology, AS (60 units)**

### ADVANCED LEVEL CERTIFICATE
- **Import/Export Professional Certificate of Achievement (12 units)**
- **Automotive Service Technology (8.5 units)**
  - AUSER 203 Automotive Engine Performance (4 units)
  - AUSER 204 Introduction to Hybrid Electric Vehicles (2 units)
  - Automotive Elective (2.5 units)
  - AUSER 238 Automotive Heating and Air Conditioning (3 units)

### MID LEVEL CERTIFICATE
- **Logistics / Warehouse Lead Certificate (19 units)**
- **Introduction to Logistics (3 units)**
- **BUS 109 Introduction to Business (3 units)**
- **BUS 186 Principles of Accounting (4 units)**
- **MATH 120 Intermediate Algebra (5 units)**
  - ENGL 1A (4 units)

### ENTRY LEVEL CERTIFICATE
- **Fork Lift, Logistics, Operations & Warehouse (FLOW) (7 Units / 9 weeks)**
  - Warehouse Operations
  - Forklift Operations
  - Computer Literacy
  - Professional Development

### BRIDGE
- **Automotive Technology (8.5 units)**
  - **1 Semester**
  - AUSER 97 Automotive Careers & History (1.5 units)
  - AUSER 101 Automotive Fundamentals (4 units)

### INDUSTRY CERTIFICATION
- **Auto Mechanic Union - Journeyman Level**
- **Auto Mechanic Union Apprenticeship - Year 4**
- **Auto Mechanic Union Apprenticeship - Year 3**

### JOBS & WAGES

<table>
<thead>
<tr>
<th>Entry Level Employment</th>
<th>Intermediate Level Employment</th>
<th>Entry Level Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warehouse Clerk, $9 - $15/hr</td>
<td>Import/Export Clerk, $10 - $15/hr</td>
<td>Warehouse Clerk, $9 - $15/hr</td>
</tr>
<tr>
<td>Forklift Operator, $12 - $17/hr</td>
<td>Technician, $15 - $26/hr</td>
<td>Forklift Operator, $12 - $17/hr</td>
</tr>
<tr>
<td>Lube Technician, $12 - $17/hr</td>
<td>Brake Technician, $15 - $26/hr</td>
<td>Lube Technician, $12 - $17/hr</td>
</tr>
<tr>
<td>Service Manager, $26 - $79/hr</td>
<td>Forklift Operator, $12 - $17/hr</td>
<td>Brake Technician, $15 - $26/hr</td>
</tr>
<tr>
<td>Team Leader</td>
<td>Forklift Operator, $12 - $17/hr</td>
<td>Brake Technician, $15 - $26/hr</td>
</tr>
<tr>
<td>Store Manager, $26 - $79/hr</td>
<td>Forklift Operator, $12 - $17/hr</td>
<td>Brake Technician, $15 - $26/hr</td>
</tr>
<tr>
<td>Field Engineer</td>
<td>Forklift Operator, $12 - $17/hr</td>
<td>Brake Technician, $15 - $26/hr</td>
</tr>
<tr>
<td>Wages: $25-$35/hr (Syr experience)</td>
<td>Forklift Operator, $12 - $17/hr</td>
<td>Brake Technician, $15 - $26/hr</td>
</tr>
</tbody>
</table>

###- Carte Latier Project

**NOTES**

- Transfer to the CSU/UC system requires completing articulate coursework.
- An Associate of Science Degree may be obtained by completing General Education requirements, in addition to the required courses for the major.

### Programs In Development

- Transportation & Logistics
- Academic Programs In Development
- Advanced Manufacturing
- Bio Sciences

**May 29, 2014**

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**College:** Contra Costa College

**Sector:** Transportation and Logistics
LESSONS LEARNED:
CREATING DBS PATHWAYS (FACULTY PANEL)

Leslie Blackie
Laney College
Laney College
Biomanufacturing Program

Dr. Leslie Blackie (Program Coordinator): lblackie@peralta.edu
Douglas Bruce (Instructor): dbruce@peralta.edu

Department of Biology
Biomanufacturing Students at Laney

- Diverse backgrounds & goals
  - Adult re-entry, retraining for new career
  - Recent high school grad, seeking vocational training
  - Post-Bac, seeking hands-on & additional training

- Unique qualities & strengths
The Biomanufacturing Program at Laney

- Career ladders model

Certificate of Proficiency (9 units)

Certificate of Achievement (17 units)

Certificate of Completion/A.S. (34-35 units) (starting Fall 2013)
The Biomanufacturing Program at Laney

Certificate of Proficiency
(9 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 75</td>
<td>Fundamentals of Biotechnology</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry 30A</td>
<td>Introductory Inorganic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Math 208</td>
<td>Math for Laboratory Scientists</td>
<td>3</td>
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</tbody>
</table>

- Can be completed in one semester
The Biomanufacturing Program at Laney

Certificate of Achievement
(17 units)

<table>
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<td>Math for Laboratory Scientists</td>
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</tr>
<tr>
<td>Biology 76</td>
<td>Principles of Biomanufacturing</td>
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<td>Biology 3</td>
<td>Microbiology</td>
<td>5</td>
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- Can be completed in two semesters
<table>
<thead>
<tr>
<th>Block</th>
<th>Courses</th>
</tr>
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</table>
| 1     | Bio 75 • Biotechnology Lab  
Chem 30A • Int. Inorg. Chem  
Math 208 • Math for Lab Sci. |
| 2     | Bio 3 • Microbiology  
Bio 76 • Bioman Lecture |
| 3     | Bio 74 • Sci. Communication  
Bio 72 • Biotech Instrumentation  
A) GLP;  B) Clean room;  
C) PCR;  D) Quality Control |
| 4     | Bio 77 • Business & Reg  
Practices (online)  
Bio 79 • Fermentation & Protein Recovery |
Industry Cert.

Academic Program of Study: BIOSCIENCE

Transfer Degree

A.S. Degree & Advanced Level Certificate
A.S. Degree - Biomanufacturing (60 units)
Bio 72A: Good Laboratory Practices (1 unit)
Bio 72B: Clean Room (1 unit)
Bio 72C: Biotech Instrumentation: PCR (1 unit)
Bio 72D: Quality Control (1 unit)
Bio 74: Scientific Communication (3 units)
Bio 77: Business and Regulatory Practices (3 units)
Bio 79: Bioreactor Cell Culture and Protein Recovery (4 units)
Plus all classes listed in Mid Level (17 units)
Plus GE classes (29 units)

Advanced Level Employment
Manufacturing Assistant
Production Technician
Laboratory Technician
Quality Control Technician
$23-25/hr

Mid Level Certificate
Certificate of Achievement - Biomanufacturing (17 units)
Bio 76: Principles of Biomanufacturing (3 units)
Bio 73: Microbiology (5 units)
Plus all classes listed in Entry Level (9 units)

Intermediate Level Employment
Material Handlers
Manufacturing Assistant
Instrumentation and Calibration
Media Prep Assistant
Lab Assistant
Quality Control Technician
$18-20/hr

Entry Level

Bridge & Entry Level Certificate
National Career Readiness Certificate
Certificate of Proficiency - Biomanufacturing Skills (9 units)
Bio 75: Fundamentals of Biotechnology (2 units)
Math 208: Math for Laboratory Science (3 units)
Chem 30A: Intro to Inorganic Chemistry (4 units)

Entry Level Employment
Glassware Washer
Documentation Coordinator
Laboratory Assistant
$16-19/hr

High School Level
High School Articulation
Agreement with ??? High Schools

Source:
LOCAL DEMONSTRATION TO REGIONAL INTEGRATION:
Pathways in a Regional Context

Theresa Rowland
Career Ladders project
Sector-Based Career Pathway

- Intro Skilled Job
- Low Skilled Job
- Entry Level Certificate
- Certificate of Proficiency in Industry Credential
- Mid Level Certificate
- Certificate of Achievement in Industry Credential
- A.A./A.S./Transfer A.A.T/A.S.T
- Degree/Transfer
- B.A./B.S. and beyond
- Advanced Skilled Job
- Proficiency Skilled Job
DBS REGIONAL PATHWAY ALIGNMENT

- Link and integrate career pathways to support a system of stackable certificates, and progression toward degrees while aligning each step along the way with job opportunities in biosciences, advanced manufacturing and transportation/logistics.

- Strategically organize an inter-web of 10 East Bay CCs, 5 WIBs, and Employers to support the entry level and incumbent workforce in the region.

- Intentional alignment over time and geography that address the skills gap in a regional economy.

- Meet the demand for a skilled workforce with more deftly integrated educational systems including high school and adult education.
How are the drivers different?

- Guidance on career lattices, occupational clusters, job growth, labor market projections, and 10 year plans.
- Moving beyond focus on next training level, longer views for the workforce system- meeting the demand with supply side portability.
- Andragogy– the adult learner, get what you need when you need it.
- Students with skills (workforce experience, military credit, high school and college credit) are recognized and can access pathways without needing to start at the beginning.
- Employers actively connect to both a region of colleges and to individual colleges through content advisement, work based learning, talent referral, and hiring.
Plan: identify next steps, what’s needed, & timelines

Determine: How do colleges organize so that credentials are portable and previous skills are recognized?

Save the date: SEPT 19, 2014 for faculty to faculty collaboration

Regional Pathways address the workforce needs of the region across major sectors; Employers are engaged; Skill gaps are addressed; Increased access and success is measured by college certificates and degrees completion.
Networking Lunch
**Bioscience Cluster:**
Facilitated by Mike Williamson, Career Ladders Project (Ginn Small)

**Transportation & Logistics Cluster:**
Facilitated by Peter Simon, Career Ladders Project (Robinson A)

**Advanced Manufacturing Cluster:**
Facilitated by Verónica Sánchez-Casián, Career Ladders Project (Nile Hall)
REPORT OUT ON REGIONAL ALIGNMENT WORK:
Next Steps
• **SUMMER 2014**  Employer Engagement with the Maps and Regional Inventories
  – Rolling out feedback process, June and beyond, through the Cluster Leadership Teams

• **FALL 2014**  Faculty Planning on Concrete next steps
  – Save the date SEPT 19, 2014 for quality work time, facilitation, and support

• **FALL 2014 and SPRING 2015**  Local and Regional Career Pathway Refinement
  – gap analysis, build on strengths,
  – increased portability and skills acquisition for entry, mid-, and advanced-level workforce
LINK TO EVALUATION:
https://www.surveymonkey.com/s/LQVDYNK

Thank You.

www.The Career Ladders Project.org
### Academic Program of Study

**UNIVERSITY DEGREE**

**A.A. / A.S. DEGREE / TRANSFER**

- **Supply Chain Management, Transfer - CSU Hayward -**
  - BUS 111 Intro to Logistics or BUS 112-Principles of Logistics (3 units)
  - CIS 4880 Introduction to Geographical Information Systems (3 units)
  - BUS 115 Computerized Logistics (3 units)

- **Global Logistics, Transfer - CSU Maritime -**
  - BUS 111 Intro to Logistics or BUS 112-Principles of Logistics (3 units)
  - CIS 4880 Introduction to Geographical Information Systems (3 units)
  - BUS 115 Computerized Logistics (3 units)

**ENTRY LEVEL CERTIFICATE**

- **Supply Chain Management Certificate of Achievement: (19 Units)**
  - BUS 010 Introduction to Business (3 units)
  - CIS 001 Introduction to Computer Information Systems (4 units)
  - BUS 111 Intro to Logistics or BUS 112-Principles of Logistics (3 units)
  - BUS 113 Introduction to Supply Chain Management (3 units)
  - BUS 114 Principles of Supply Chain Management (3 units)
  - BUS 116 Warehouse Management (3 units)

**MID LEVEL CERTIFICATE**

- **Supply Chain Management Certificate of Achievement: (19 Units)**
  - BUS 010 Introduction to Business (3 units)
  - CIS 001 Introduction to Computer Information Systems (4 units)
  - BUS 111 Intro to Logistics or BUS 112-Principles of Logistics (3 units)
  - BUS 113 Introduction to Supply Chain Management (3 units)
  - BUS 114 Principles of Supply Chain Management (3 units)
  - BUS 116 Warehouse Management (3 units)

**ADVANCED LEVEL CERTIFICATE**

- **AA / Diesel Mechanics, Certificate of Achievement: (46 Units)**
  - SEMESTER 1: DMech 20A Truck Mechanics I 4
  - DMech 11 Truck Mechanics Chassis Systems I 6
  - DMech 12 A Preventative Maintenance Technician (3 units)
  - DMech 20B Truck Mechanics II 4
  - DMech 12 Truck Mechanics Chassis Systems II 6
  - DMech 248 A Preventative Maintenance Technician (3 units)

**INDUSTRY CERTIFICATION**

- **Certified Logistics Associate**
- **Intermediate Level Employment:**
  - Forklift Operator, $12 - $21/hr
  - Warehouse Clerk, $9 - $15/hr
  - Shipping & Receiving Clerk, $10 - $15/hr
  - Preventative Maintenance Technician, $14 - $20/hr

**JOBS & WAGES**

- **A.A. / A.S. Degree / Transfer**
  - Diesel: $39 - $68/hr
  - Certified Logistics Associate

**NOTES**

- **Programs in Development**
- **Agreement with CSU Hayward and CSU Maritime**
- **Awarded by the Accrediting Commission for Community and Junior Colleges, ACCSC**

### Green Diesel Technician Program

- **Certification: (28-30 Units)**
  - Warehouse / Forklift Bootcamp (2 day Orientation)
  - CDL A (Passenger Endorsement)
  - MATH 250: Elementary Algebra (or higher, depending on assessment) (3 units)

### Optional Pathways

- **CIS 200: Computer Concepts & Applications or CIS 205 Computer Literacy or BUS 219 Computer Literacy**
- **Transfer - CSU Hayward -**
  - BUS 200 Business Terminology in Logistics (3 units)
  - BUS 236 Records Management in Logistics (2 units)
  - CIS 1: Introduction to Computer Information systems (4 units)

### Transportation and Logistics

- **Degree Options:**
  - A.A. / A.S. Degree / Transfer
  - Intermediate Level Employment:
    - Foreman/ Lead Warehouse / Supply Chain
    - $12 - $21/hr
  - Entry Level Employment:
    - Forklift Operator, $9 - $15/hr
    - Warehouse Clerk, $9 - $15/hr
    - Shipping & Receiving Clerk, $10 - $15/hr
    - Preventative Maintenance Technician, $14 - $20/hr

### Training Requirements for the Green Diesel Technician Program:

1. Interest in trade & logistics or transportation / warehousing as a career
2. Clean and sober
3. 6th grade reading and math level
4. Willingness to learn and to work/punctuality
5. Must be able to attend training for 12 weeks Green Diesel program
6. Must have tool kit/with specific tools (list to be distributed at orientation), approximate cost $300.00

### Career Ladder Project

- **May 29, 2014**
- **Sectors:** Transportation and Logistics
- **College:** College of Alameda

### College of Alameda

- **Transportation and Logistics**
- **Sector:** Transportation and Logistics
- **Programs in Development:**
  - Bio Sciences
  - Advanced Manufacturing
  - Transportation & Logistics
  - Bio Sciences
  - Advanced Manufacturing
  - Transportation & Logistics
**ACADEMIC PROGRAM OF STUDY**

**UNIVERSITY DEGREE**
- Police Science, BS
  - Transfer - CSU Hayward
- Business: Supply Chain Mgmt, BS
  - Transfer - CSU Hayward
- Port Security
  - Transfer - CSU Maritime

**A.A./A.S DEGREE / TRANSFER**
- Police Science, AS
  - 4 semesters (41 Units)
- AS Business: Supply Chain Mgmt
- Port Security, AS (40+ Units)

**ADVANCED LEVEL CERTIFICATE**
- Homeland/Legistics Security (Advanced Level Courses)
- Seaport Security TBD

**MID LEVEL CERTIFICATE**
- Homeland Security/Sea Port Certificate (Intermediate Level Courses)

**ENTRY LEVEL CERTIFICATE**
- Homeland Security Certificate: (16 Units)
  - ADJUS 021 Introduction to Administration of Justice (3 units)
  - ADJUS 70 Introduction to Homeland Security (3 units)
  - ADJUS 71 Intelligence Analysis and Security Management (3 units)
  - ADJUS 72 Introduction to Terrorism/WMD (3 units)
  - ADJUS 115 Transportation and Border Security (3 units)
  - ADJUS 116 Security Guard (1 unit)

**NOTES**
- **ADVANCED LEVEL**
  - Transfer to the CSU/UC system requires completing articulate coursework.
  - An Associate of Science Degree may be obtained by completing General Education requirements, in addition to the required courses for the major.

- **MID LEVEL**
  - In Police Science: Engl 201A and 201B are not transferable; ENGL 1A and 1B are required for transfer and for the Associate degree.

- **ENTRY LEVEL**
  - Homeland Security
    - The program examines threats against national security, examines national and international terrorist threats, and explores the roles and responsibilities of local and national security agencies when preparing for emergencies. The program is designed to prepare students for employment in entry-level and advanced positions in the public and private sectors of security.
    - Homeland Security Certificate is a two year program that included entry, mid, and advanced levels.

**INDUSTRIAL CERTIFICATION**
- Port Security Officer
  - Intermediate Level Employment:
    - Port Security Officer
    - Corporate Security
    - Custom Protection
    - Warehouse Security/Loss Prevention
    - TSA Supervisor

**JOBS & WAGES**
- **ENTRY LEVEL EMPLOYMENT:**
  - $10 - $15/hr
  - $30 - $44/hr
  - $34 - $47/hr

- **INTERMEDIATE LEVEL EMPLOYMENT:**
  - $35 - $54/hr
  - $46 - $69/hr

- **ADVANCED LEVEL EMPLOYMENT:**
  - $40 - $65/hr
  - $67 - $101/hr

**INDUSTRIAL CERTIFICATION**
- Port Security Officer (in development)
- Intermediate Level Employment:
  - Private Patrol
  - Corporate Security
  - Custom Protection
  - Warehouse Security/Loss Prevention
  - TSA Supervisor

**ACADEMIC PROGRAM OF STUDY**
- **UNIVERSITY DEGREE**
  - Police Science, BS
    - Transfer - CSU Hayward
  - Business: Supply Chain Mgmt, BS
    - Transfer - CSU Hayward
  - Port Security
    - Transfer - CSU Maritime

- **A.A./A.S DEGREE / TRANSFER**
  - Police Science, AS
    - 4 semesters (41 Units)
  - AS Business: Supply Chain Mgmt
  - Port Security, AS (40+ Units)

- **ADVANCED LEVEL CERTIFICATE**
  - Homeland/Legistics Security (Advanced Level Courses)
  - Seaport Security TBD

- **MID LEVEL CERTIFICATE**
  - Homeland Security/Sea Port Certificate (Intermediate Level Courses)

- **ENTRY LEVEL CERTIFICATE**
  - Homeland Security Certificate: (16 Units)
    - ADJUS 021 Introduction to Administration of Justice (3 units)
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    - ADJUS 115 Transportation and Border Security (3 units)
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**NOTES**
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    - Homeland Security Certificate is a two year program that included entry, mid, and advanced levels.
<table>
<thead>
<tr>
<th>UNIVERSITY LEVEL</th>
<th>A.A./A.S. DEGREE/TRANSFER</th>
<th>ADVANCED LEVEL</th>
<th>MID LEVEL CERTIFICATE</th>
<th>ENTRY LEVEL CERTIFICATE</th>
<th>BRIDGE</th>
<th>JOBS &amp; WAGES</th>
<th>INDUSTRY CERTIFICATION</th>
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</thead>
<tbody>
<tr>
<td>CSU East Bay</td>
<td>BS CSU Maritime International Business and Logistics</td>
<td>AS in Corrections: CCC</td>
<td>Supply Chain Management : COA (19 units)</td>
<td>Warehouse Forklift COA (8 units)</td>
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<td>Advanced Level Employment ($25 - 45/hr)</td>
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<tr>
<td>BS CSU East Bay Supply Chain Management</td>
<td>AA Business: Supply Chain Mgmt: COA</td>
<td>Intro to AJ Police Science: Merritt</td>
<td>Office Admin COA (12 units)</td>
<td>Green Diesel COA (5 units)</td>
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<td>Light and Heavy Duty Engine/ Hybrid Mechanic</td>
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<td>BS/BA Business Administration CSU / UC / Private</td>
<td>AS Automotive Technology (60 units): CCC</td>
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<td>Automotive Technology (8.5 units): CCC</td>
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<td>Sea Port Certification: Merritt</td>
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<td>Apprenticeship Auto Mechanic: CCC</td>
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<td>Assistant Manager/Supervisor - Warehouse Supply Chain</td>
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<td>Port Security Officer: Merritt</td>
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<td>Automotive Technology CAA Bridge CCC</td>
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<td>Licensed Import/Export Broker</td>
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<td>REGIONAL CERTIFICATES/ DEGREES AND COMPETENCIES</td>
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<td>Port Security Officer</td>
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<td>JOBS &amp; WAGES</td>
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<td>Intermediate Level Employment ($20 - 30/hr)</td>
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<td>JOBS &amp; WAGES</td>
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<td>JOBS &amp; WAGES</td>
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<td>Import/Export Broker License</td>
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<td>Homeland Security: TWIC Card</td>
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<td>Baton Card Certification</td>
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<td>Entry Level Employment ($12 - 18/hr)</td>
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<td>JOBS &amp; WAGES</td>
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<td>Shipping/Receiving Clerk</td>
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<td>Maintenance &amp; Smog Techs</td>
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<td>Prevention Maintenance &amp; Inspection (PM)Technician_Green Diesel</td>
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<td>JOBS &amp; WAGES</td>
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<td>Inventory Specialist</td>
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</table>

**SECTOR:** Transportation and Logistics

**College:**
- College of Alameda
- Merritt College
- Contra Costa College
- Chabot College

**Programs:**
- Programs
- Programs In Development
- Pathways to Programs
- Optional Pathways

**Certificates/Credentials:**
- Design it - Build it - Ship it
- A.C.E. - Associate of Career Education
- A.A.S. - Associate of Arts in Science
- A.A. - Associate of Arts
- A.S. - Associate of Science
- B.A. - Bachelor of Arts
- B.S. - Bachelor of Science
- B.S.B. - Bachelor of Science in Business
- B.A.S. - Bachelor of Arts in Science
- B.A.S.B. - Bachelor of Arts in Science in Business
- M.A. - Master of Arts
- M.S. - Master of Science
- M.P.A. - Master of Public Administration
- M.B.A. - Master of Business Administration
- J.D. - Juris Doctor
- Ph.D. - Doctor of Philosophy
- Ed.D. - Doctor of Education

**Academic Programs:**
- Transportation & Logistics
- Advanced Manufacturing
- Bio Sciences

**Regional Offerings:**
- Transportation & Logistics
- Advanced Manufacturing
- Bio Sciences

**Pathways to Programs:**
- Security
- Logistics
- Automotive

**Career Ladders Project:**
- May 29, 2014
Transfer to the CSU/UC system requires completing articulate coursework.
An Associate of Science Degree may be obtained by completing General Education requirements, in addition to the required courses for the major.

**UNIVERSITY DEGREE**

**A.A./A.S. DEGREE / TRANSFER**

**A.S. Degree - Biomanufacturing Production (61 units)**
All classes listed in the Mid and Advanced Levels (31 units) Plus GE classes (30 units)

**ADVANCED LEVEL CERTIFICATE**

**Certificate of Achievement: Biomanufacturing Production**
Bio 72A: Good Laboratory Practices (1 unit)
Bio 72B: Clean Room (1 unit)
Bio 72C: Biotech Instrumentation: PCR (1 unit)
Bio 72D: Quality Control (1 unit)
Bio 74: Scientific Communication (3 units)
Bio 77: Business and Regulatory Practices (3 units)
Bio 78: Bioreactor Cell Culture and Protein Recovery (4 units)
Plus all classes listed in Mid Level (17 units)

**MID LEVEL CERTIFICATE**

**Certificate of Achievement: Biomanufacturing (17 units) / 2 semesters**
Bio 76: Principles of Biomanufacturing (3 units)
Bio 3: Microbiology (5 units)
Bio 75: Fundamentals of Biotechnology (2 units)
Math 208: Math for Laboratory Science (3 units)
Chem 30A: Intro to Inorganic Chemistry (4 units)

**ENTRY LEVEL CERTIFICATE**

**Certificate of Proficiency: Biomanufacturing Skills (9 units) / 1 semester**
Bio 75: Fundamentals of Biotechnology (2 units)
Math 208: Math for Laboratory Science (3 units)
Chem 30A: Intro to Inorganic Chemistry (4 units)

**BrIDGE**

Regional High School Articulation: Amador Valley High School
American High School
Castro Valley High School
Fremont Christian
Granada High School
James C. Enos High School
MVROP (at Newark Memorial HS)
Santa Clara High School
Tennyson High School
Tracy High School

**CORE COMPETENCIES**

Advanced Level Employment:
- Manufacturing Assistant
- Production Technician
- Laboratory Technician
- Quality Control Technician $23 - 25/hr

Intermediate Level Employment:
- Research Assistant
- Instrumentation and Calibration
- Media Prep Assistant
- Lab Assistant
- Quality Control Technician or Assistant $18 - 20/hr

Entry Level Employment:
- Glassware washing
- Documentation Coordinators
- Laboratory support workers $16 - 18/hr
- Lab Technician $18 - 20/hr

**JOBS & WAGES**

Further research in progress

*NOTES*

ACADEMIC PROGRAM OF STUDY

ENTRY LEVEL

- Glassware washing
- Documentation Coordinators
- Laboratory support workers $16 - 18/hr
- Lab Technician $18 - 20/hr

ADVANCED LEVEL

- Manufacturing Assistant
- Production Technician
- Laboratory Technician
- Quality Control Technician $23 - 25/hr

MID LEVEL

Intermediate Level Employment:
- Research Assistant
- Instrumentation and Calibration
- Media Prep Assistant
- Lab Assistant
- Quality Control Technician or Assistant $18 - 20/hr

ENTRY LEVEL CERTIFICATE

- Certificate of Proficiency: Biomanufacturing Skills (9 units) / 1 semester
- Bio 75: Fundamentals of Biotechnology (2 units)
- Math 208: Math for Laboratory Science (3 units)
- Chem 30A: Intro to Inorganic Chemistry (4 units)

Regional High School Articulation:
- Amador Valley High School
- American High School
- Castro Valley High School
- Fremont Christian
- Granada High School
- James C. Enos High School
- MVROP (at Newark Memorial HS)
- Santa Clara High School
- Tennyson High School
- Tracy High School

**Pathways to Programs**

- Programs
- Programs in Development
- Optional Pathways
- Certificates/Credentials
- Prerequisites
- Stackable Bioscience Classes

May 29, 2014
College: Ohlone College
Sector: BioSciences

NOTES

ACADEMIC PROGRAM OF STUDY

UNIVERSITY DEGREE

A.A./A.S. DEGREE/TRANSFER

A.S Degree BioTechnology (60 Units)
- Biotechnology Classes (33 units)
- General Education Classes (27 units)
- Research Associate Certificate

ADVANCED LEVEL CERTIFICATE

Certificate of Achievement: Research Associate (24.5 units)
- Chem 109 BioChemistry (4 units)
- Biot 121 Biotech Careers (1 unit)
- Biot 105 Biotech Cell Molecular (4 units)
- Biot 110A PCR/DNA-Protein ISO (3 units)
- Biot 113/123 GMP/GLP/SDP (1.5 units)
- Biot 115A/B Animal/BioReactor Cell Culture (2 units)
- Biot 111A/B Genomics/PCR Primer (2 units)
- Biot 117 Immunology (1 unit)
- Biot 101 Research Projects (3 units)
- Biot 104A HPCL (0.5 units)
- CAOT 148 Computer Apps (0.5 units)
- Eng 156 Technical Writing (3 units)

Certificate of Achievement: Biostatistics (29.5 units)
- Chem 109 BioChemistry (4 units)
- Biot 121 Biotech Careers (1 unit)
- Biot 105 Biotech Cell Molecular (4 units)
- Biot 110A PCR/DNA-Protein ISO (3 units)
- Biot 113/123 GMP/GLP/SDP (1.5 units)
- Biot 115A/B Animal/BioReactor Cell Culture (2 units)
- Biot 119 Cleanroom (0.5 units)
- CAOT 148 Computer Apps (0.5 units)
- English 156 Tech Writing (3 units)
- Biot 112 Informatics (2 units)
- Biot 133 SAS Programming (3 units)
- Math 159 Statistics & Probability (3 units)

MID LEVEL CERTIFICATE

Certificate of Accomplishment - MolBio Research Techniques (10 units)
- *Bio Majors Only
  - Biot 101A Cell/Molecular Biology (5 units)
  - Biot 110A PCR/DNA-Protein ISO (3 units)
  - Biot 111A Genomics (1 unit)
  - Biot 111B PCR Primer (1 unit)
- Certificate of Accomplishment - Biomanufacturing (16 units)
  - Chem 109 BioChemistry (4 units)
  - Biot 121 Biotech Careers (1 unit)
  - Biot 105 Biotech Cell Molecular (4 units)
  - Biot 110A PCR/DNA-Protein ISO (3 units)
  - Biot 113/123 GMP/GLP/SDP (1.5 units)
  - Biot 115A/B Animal/BioReactor Cell Culture (2 units)
  - Biot 119 Cleanroom (0.5 units)

ENTRY LEVEL CERTIFICATE

Bio 103 Summer Lab (.5 Units) /2 weeks

Bridge

Regional High School Articulation:
- Amador Valley High School
- American High School
- Castro Valley High School
- Fremont Christian
- Granada High School
- James C. Enna High School
- MVROP (at Newark Memorial HS)
- Santa Clara High School
- Tennessee High School
- Tracy High School

A. Mid Level Certificate
- Entry Level Employment:
  - Glassware washing
  - Documentation Coordinators

B. Advanced Level Certificate
- Advanced Level Employment:
  - Manufacturing Assistant
  - Production Technician

C. Intermediate Level Employment:
- Research Assistant
- Instrumentation and Calibration
- Media Prep Assistant
- Lab Assistant
- Quality Control Technician or Assistant

Further research in progress

Core Competencies

Jobs & Wages

May 29, 2014