

# Attachment A

# ACC Career Academies

IT Academy

# ACC IT Academy

The IT Academy has been developed to enable high school students to earn certificates to facilitate entry into the IT industry immediately upon graduating from high school.

# Certificates Offered

- Networking/User Support track:
  - Network Administration
  - User/Computer Support
- Computer Programming track:
  - Database Administration
  - Java
  - C++
  - Software Testing
  - Web Developer Specialist

# How it works

- Students are bused to the ACC Highland Campus
- First semester is set course sequence
- Second semester- students move into their area of specialization

# Eligibility

- Eligibility requirements:
  - TSI complete in Reading and Writing
  - TSI complete by December for programming specialization

# Internships

Paid Summer internships are being arranged with the assistance of Capital Academies Inc., a local nonprofit.

# Future Academies

- Construction Trades
- Health Sciences



# Contact

For more information, please contact:

**Sam Greer, PhD**

**Director, Career Academies**

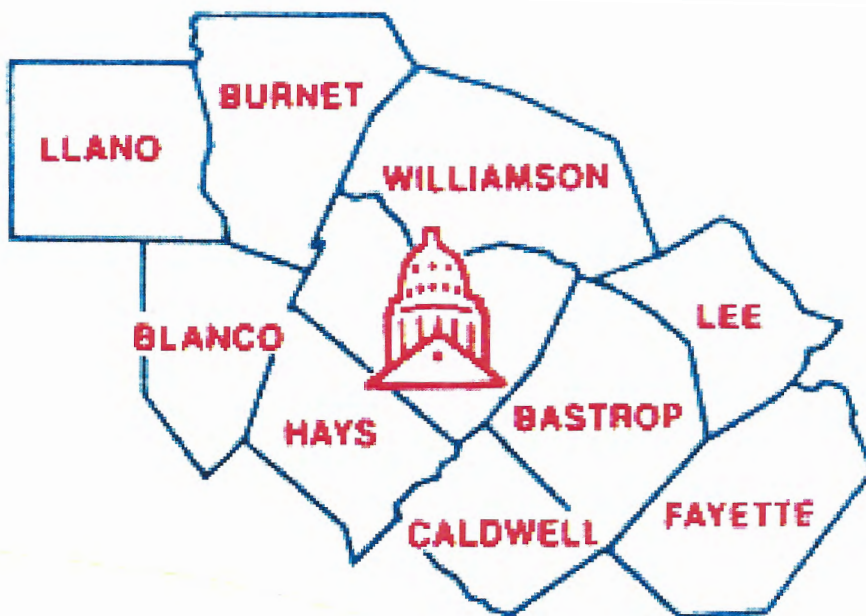
**[Samuel.greer@austincc.edu](mailto:Samuel.greer@austincc.edu)**

# Attachment B



# WORKFORCE SOLUTIONS

RURAL CAPITAL AREA





PO Box 5279  
Round Rock, Texas 78683  
Phone: 512.244.7966  
Fax: 855.326.3055  
www.workforcesolutionsrca.com

January 21, 2016

To: Independent School Districts  
Chambers of Commerce  
Economic Development Corporations  
Community and Technical Colleges

From: James Satterwhite, Executive Director

Re: **Funding for Youth Career Fairs Still Available**

Workforce Solutions Rural Capital Area (WSRCA) has approximately \$20,000 **still available** to assist in funding a youth career fair.

Applications will be funded on a **"first come, first served basis"** until the WSRCA funds are gone.

The size, target population and design of your career fair needs to meet the needs of your community and can be non-traditional. WSRCA has included area community and technical colleges as applicants in this second round of applications.

Below are additional suggestions/ideas to consider.

- The target group could be all high school students, only juniors and seniors, only seniors.
- The fair could be designed for middle school students and parents prior to course selection for high school.
- The fair can include more than one ISD. If you partner with a community or technical college this may be easier to do.
- Instead of all industries, the fair could target certain industry areas such as STEM, business, trades, health.
- The fair could include workshops with presenters for soft skill training.
- These fairs can take place anytime this spring or the beginning of the 2016-2017 school year.

Attached is a one page application form. Please review the following information regarding the funds.

- Youth career fairs held prior to **September 30, 2016** are eligible for funding.
- Funds are for expenses associated with hosting a career fair such as facility fees, table rentals, AV equipment rental, wireless access, presenter fees.
- Funds are not for food, drinks, snacks, or staff time.
- Prior to reimbursement, WSRCA requires receipts/invoices of the purchases. Any purchase over \$3,000 requires a minimum of two bids.

*The Texas Workforce Commission in partnership with 28 local workforce development boards forms Texas Workforce Solutions*  
Workforce Solutions Rural Capital Area is an Equal Opportunity Employer/Program  
Auxiliary Aids and Services are available upon request to individuals with disabilities  
Relay TX: 711 or 1-800-735-2988 (Voice) or 1-800-735-2989 (TDD)

Upon award of funds, designated WSRCA staff will participate in your Youth Career Fair planning and arrange for Workforce Center services such as workshops, career information and business contacts for the fair.

If interested, please send the attached application to Jenna Akridge at [jenna.akridge@ruralcapital.net](mailto:jenna.akridge@ruralcapital.net) .

# Do You Have Students Seeking A Certification In A High Demand Occupation?



For a limited time, Workforce Solutions Rural Capital Area is providing reimbursement assistance to qualified students seeking to obtain a career certification\* in one of the following occupations:

<ul style="list-style-type: none"> <li>• Accountant or Auditor</li> <li>• Aerospace Engineering or Operation Tech.</li> <li>• Aircraft Mechanic or Service Tech.</li> <li>• Atmospheric or Space Scientist</li> <li>• Automotive Service Tech or Mechanic</li> <li>• Avionics Tech.</li> <li>• Bookkeeping, Accounting, or Audit Clerk</li> <li>• Business Operations Specialist or Other</li> <li>• Compensation or Benefits Manager</li> <li>• Compensation, Benefits, or Job Analysis Specialist</li> <li>• Compliance Officer, Except Agriculture, Construction, Health &amp; Safety, &amp; Transportation</li> <li>• Computer &amp; Information Systems Manager</li> <li>• Computer Software Engineer, Applications</li> <li>• Computer Software Engineer, Systems Software</li> <li>• Computer Support Specialist</li> <li>• Computer Systems Analyst</li> <li>• Computer-Control Machine Tool Operator</li> <li>• Computer-Control Machine Tool Programmer</li> <li>• Construction and Building Inspector</li> <li>• Construction Manager</li> </ul>	<ul style="list-style-type: none"> <li>• Cost Estimator</li> <li>• Database Administrator</li> <li>• Dental Assistant</li> <li>• Electrical Power-Line Installer or Repairer</li> <li>• Electrician</li> <li>• Employment, Recruitment, or Placement Specialist</li> <li>• Engineer, All Other</li> <li>• Executive Secretary or Administrative Assist.</li> <li>• Financial Analyst</li> <li>• Financial Manager</li> <li>• First-Line Supervisor/Manager of Construction Trades &amp; Extraction Workers</li> <li>• Human Resources Assistant (Except Payroll &amp; Timekeeping)</li> <li>• Human Resources, Training, or Labor Relations Specialist, All Other</li> <li>• HVAC Mechanic or Installer</li> <li>• Industrial Machinery Mechanic</li> <li>• Inspector, Tester, Sorter, Sampler, or Weigher</li> <li>• Licensed Practical or Vocational Nurse</li> <li>• Loan Officer</li> <li>• Machinist</li> <li>• Maintenance or Repair Worker, General</li> </ul>	<ul style="list-style-type: none"> <li>• Market Research Analyst</li> <li>• Mechanical Drafter</li> <li>• Medical or Clinical Laboratory Tech.</li> <li>• Medical Assistant</li> <li>• Medical Equipment Preparer</li> <li>• Medical Secretary</li> <li>• Millwright</li> <li>• Multi-Media Artist or Animator</li> <li>• Network or Computer Systems Administrator</li> <li>• Network Systems or Data Communications Analyst</li> <li>• Occupational Health and Safety Specialist</li> <li>• Personal Financial Advisor</li> <li>• Petroleum Engineer</li> <li>• Plumber, Pipefitter, or Steamfitter</li> <li>• Public Relations Specialist</li> <li>• Radiologic Technologist or Technician</li> <li>• Registered Nurse</li> <li>• Rotary Drill Operator, Oil and Gas</li> <li>• Sales Representative, Services, All Other</li> <li>• Telecom Equipment Installer or Repairer</li> <li>• Telecom Line Installer or Repairer</li> <li>• Training and Development Specialist</li> <li>• Welder, Cutter, Solderer, or Brazier</li> </ul>
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## \* Eligibility Requirements and Other Conditions:

- Student must be authorized to work in the US
- Be able to show proof of age (must be 18+)
- Registered with Selective Service (males 18+)
- Must provide receipt of payment
- Proof of examination completion
- Documentation of exam results

Must be a Nationally or State recognized certification. Reimbursement is limited to certification cost only - no tuition or training material costs are allowed. Financial assistance available through December 2016 or until exhausted.



For more information please email  
[skills.grant@ruralcapital.net](mailto:skills.grant@ruralcapital.net)

An Equal Opportunity Employer/Program  
Auxiliary aids and services are available upon request  
to individuals with disabilities  
Relay TX: 711 or 1-800-735-2988 (Voice) or 1-800-735-2989 (TDD)



## (Travis County Only)

**Tiffany Daniels**

Director, Communications and Employer Engagement

Workforce Solutions Capital Area

6505 Airport Blvd., Ste 101E | Austin, TX | 78752

512.597.7129 Direct | 512.799.8644 Cell | 512.381.5110 Fax

[tiffany.daniels@wfscapitalarea.com](mailto:tiffany.daniels@wfscapitalarea.com)

[www.wfscapitalarea.com](http://www.wfscapitalarea.com)



Please tell us how we are doing at [www.wfscapitalarea.com/survey](http://www.wfscapitalarea.com/survey).

Visit the [WFS Capital Area Jobs Map](#) to see current job openings in the Austin area.

# Attachment C



## Rebecca Robinson - Francis

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**From:** Jennifer Lazare  
**Sent:** Friday, January 29, 2016 8:29 PM  
**To:** Rebecca Robinson - Francis; Davelyn Forrest; norris.sebastian@dvisd.net; jennifer.mendez@austinisd.org  
**Cc:** Angela Wheeler; Linnea Fletcher  
**Subject:** The Texas Biotech Pathway (ACCTech meeting followup)  
**Attachments:** Biotechnology Program Internship Manual\_Sp15.docx; AC2 Presentation.pptx

Rebecca, can you please send this out to the attendants at today's ACCTech meeting. Thank you!

Dear Colleagues,

Thank you for allowing me to give you a snap shot of The Texas Biotechnology pathway today at the ACCTech meeting!

I am attaching/listing some resources that will help with implementation and answer some of your questions.

As I mentioned, ACC Biotech would be delighted to help any school or district start the Biotechnology Pathway. I've been building my program at Anderson for over 10 years and am here to you with your questions, concerns, roadmaps and implementation. My partner, Angela Wheeler, has taught biotechnology at ACC for many years. Together we are a well-versed team in the high school/ACC articulation and dual credit process.

One of our AC2 grant's objectives is to help spread the biotechnology program to other schools and districts. It can be offered as articulated or dual credit for all students. The courses are hands on and run like a mini-company built upon workforce, career and college skills.

Please review the information and let us know if you would like us to come talk to schools, districts, teacher or whoever would like to know more about our program.

It's definitely not to late to start the program in Fall 2016, especially if you are in AISD. I have worked closely with the AISD CTE department over the years building our program at Anderson so the framework is all already laid out for your schools. A replication model will be a smooth ride. All TEKS, curriculum, teacher PD and resources have been developed under a previous TEA grant by our ACC Biotech group made up of teachers and industry professionals. Here is the curriculum for Advanced Biotech: <https://cte.unt.edu/stem/advanced-biotechnology>. There will be more to come with the new courses in 2017!

Please review:

- The Texas Biotechnology Implementation Manual attached first. It has been written from a high school view point.
- Review the AC2 grant goals.
- Visit our website and share with your teacher: <http://txbiotech1.weebly.com> We offer teacher training and support which can sometimes be difficult to find for industry courses.
- Save the date for our FREE (25.00 is for teachers to receive CE credit) summer teacher workshop July 18-22, 2016 at Anderson HS. During this week teachers will perform all of the labs required for the course. Visit <http://txbiotechworkshop.weebly.com> to view agendas

We look forward to partnering with all of you!

Sincerely



Jennifer Lazare  
Austin Community College  
Department of Biology  
Assistant Professor  
ACC Bio-Link ATE Regional Center Grant for Biotechnology  
Coordinator of Curriculum and Training

# The Texas Biotechnology Pathway



Learning that works for Texas

**CTE**<sup>TM</sup>

# House Bill 5



House Bill 5 was passed by the Texas legislature and signed into law in June 2013.

HB 5 makes significant changes to curriculum, assessment and accountability.



## New Graduation Requirements



### Foundation Plan

Requires students to complete 22 credits.

ELA - 4 credits	PE - 1 credit
Mathematics - 3 credits	LOTE - 2 credits
Science - 3 credits	Fine Arts - 1 credit
Social Studies - 3 credits	Electives - 5 credits

### Foundation + Endorsement

Requires students to complete 26 credits.

22 Foundation credits	* Credits must meet curriculum requirements for one endorsement.
1 additional math credit	
1 additional science credit	
2 additional elective credits	

### Distinguished Level of Achievement

A student may earn a distinguished level of achievement by successfully completing:

- 4 credits in Math (must include Algebra II)
- 4 credits in science
- Curriculum requirements for at least one endorsement

# House Bill 5

## Endorsements

### Beginning in the 2014-2015 School Year

Upon entering ninth grade, a student must indicate in writing an endorsement that he or she intends to earn.

A district must permit a student to choose, at any time, to earn an endorsement other than the endorsement the student previously indicated.

### Students earn an endorsement by completing:

Curriculum requirements for the endorsement

Four credits in mathematics

Four credits in science

Two additional elective credits

### STEM

Courses related to science, technology, engineering, and mathematics.

### Business & Industry

Courses related to agriculture, architecture, construction, business & industry, hospitality, transportation, manufacturing, marketing, and finance.

### Public Services

Courses related to education and training, health sciences, government and law enforcement.

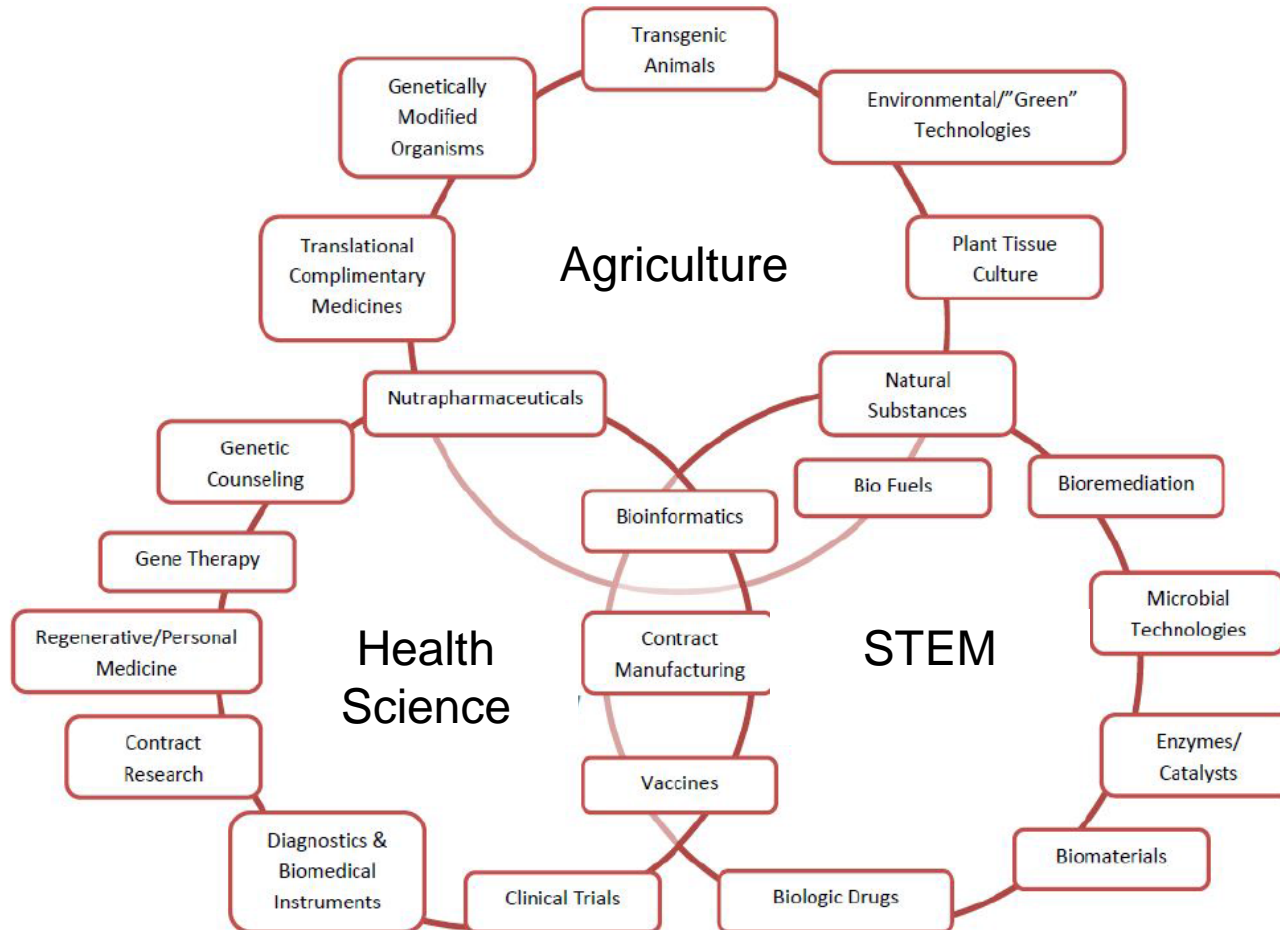
### Arts & Humanities

Courses related to fine arts, history, world languages, and English literature.

### Multidiscip

Includes courses from each of the endorsement areas.  
\* If a district can only offer one endorsement, it must be Multidisciplinary.

# SBOE Endorsements – Advanced Biotechnology



# Endorsement Advanced Courses

## SBOE Rule

### Fourth Science Credit to Earn an Endorsement

Chemistry	IB Physics
Physics	IB Environmental Systems
Aquatic Science	Advanced Animal Science
Astronomy	Advanced Plant and Soil Science
Earth and Space Science	Anatomy and Physiology
Environmental Systems	Medical Microbiology
AP Biology	Pathophysiology
AP Chemistry	Food Science
AP Physics 1: Algebra-Based	Forensic Science
AP Physics 2: Algebra-Based	Advanced Biotechnology
AP Physics C	Principles of Technology
AP Environmental Science	Scientific Research & Design
IB Biology	Engineering Design & Problem Solving
IB Chemistry	Principles of Engineering
locally developed science course or other activity [pursuant to TEC, §28.002(g-1)]	science course endorsed by an IHE [pursuant to TEC, §28.025(b-5)]

# Who can teach this course?

## GRADES 9-12

### ASSIGNMENTS

### CERTIFICATE

#### SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Concepts of Engineering and Technology

Any agriculture certificate  
Any Technology Education, Industrial Technology, or Industrial Arts certificate  
Health Science Technology  
Health Science Technology Education: Grades 8-12  
Mathematics/Physical Science/Engineering: Grades 8-12  
Trade and Industrial Education: Grades 8-12 with appropriate work approval  
Vocational Health Occupations  
Vocational Trades and Industry with appropriate work approval

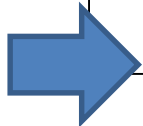
Biotechnology

Any agriculture certificate  
Any Technology Education, Industrial Technology, or Industrial Arts certificate  
Health Science Technology  
Health Science Technology Education: Grades 8-12  
Mathematics/Physical Science/Engineering: Grades 8-12  
Vocational Health Occupations


Advanced Biotechnology\*

Any agriculture certificate  
Any secondary biology certificate  
Any secondary science or science composite certificate  
Health Science Technology  
Health Science Technology Education: Grades 8-12  
Life Science: Grades 8-12  
Master Science Teacher (Grades 8-12)  
Science: Grades 8-12  
Vocational Health Occupations with a baccalaureate degree

\*All teachers assigned to this course shall participate in Texas Education Agency (TEA)-approved training prior to teaching this course effective with the 2012-2013 school year. Teachers assigned to this course in the 2010-2011 and/or 2011-2012 school year will have 12 months from the date the training is first offered to complete the TEA-approved training requirement.



# New Learning Management System TBA



The screenshot shows the Project Share website interface. At the top left is the Project Share logo with the tagline "Knowledge knows no boundaries". To the right is a "Join your learning community" section with fields for "USERNAME" and "PASSWORD", and a link for "Forgot your username or password? Re-activate account?". Below the logo is a navigation menu with links for "STANDARDS SEARCH", "RESOURCE INDEX", "NEWS", "ABOUT US", and "CONTACT US". The main content area is split into two columns. The left column is titled "Find Resources" and contains a search form with "Standards Search" dropdowns for "Select subject" and "Select grade/course", and buttons for "FIND STANDARDS" and "KEYWORD SEARCH". The right column is titled "FEATURED RESOURCE" and shows a carousel of images. The current resource is "STAR: English I, II,..." with ID "staar001" and a "VIEW RESOURCE" button. Below the main content is a green banner with a Twitter icon and the text "What's new in iTunes U? From McDonald Observatory to El Paso ISD, Texas Education has expanded its video col..." followed by "1 day 41 min ago". At the bottom left, there are three yellow arrows pointing up, followed by the text "Project Share takes Texas educators and students beyond the walls of the traditional classroom and gives them an online environment of educational resources that incorporates the use of today's digital tools. Take a look at our new features." At the bottom right, there is a navigation menu with links for "NEWS", "EDUCATORS", "STUDENTS", and "MISSION".



# TEA Advanced Biotechnology – 6 Courses

- Home
- ePortfolio ⊕
- Profile
- Messages
- Collaboration ⊕
- Learning ⊕
- Content Repository
- Utilities ⊕
- Help

## View Courses ?

View Courses Search Courses Create Course

Filter By: Active Courses

Course	Starts	Ends	My Role	Action
<span>★</span> TEA Advanced Biotechnology: Part 1 Course Type: Epsilon - Complete	9/17/2012	8/30/2015	Instructor	▼
<span>★</span> TEA Advanced Biotechnology: Part 2 Course Type: Epsilon - Complete	9/17/2012	8/30/2015	Instructor	▼
<span>★</span> TEA Advanced Biotechnology: Part 3 Course Type: Epsilon - Complete	9/17/2012	8/30/2015	Instructor	▼
<span>★</span> TEA Advanced Biotechnology: Part 4 Course Type: Epsilon - Complete	9/17/2012	8/30/2015	Instructor	▼
<span>★</span> TEA Advanced Biotechnology: Part 5 Course Type: Epsilon - Complete	9/18/2012	8/30/2015	Instructor	▼
<span>★</span> TEA Advanced Biotechnology: Part 6 Course Type: Epsilon - Complete	9/18/2012	8/30/2015	Instructor	▼
<span>★</span> Advanced Biotechnology Teacher Professional Development (as required by 19 TAC §231.1) 500241 Course Type: Epsilon - Complete	3/16/2011	12/31/2016	Instructor	▼

# Power Points

- Found in Project Share Course
- Edit and customize for your classroom

### Stem Cells

- ❖ Adult-Derived Stem Cells – cell from mature tissue that can be cultured and differentiated to become any cell type from the organ of origin

**Regenerative Medicine - TEA Biotechnolo...**  
2 months ago

### The Future of Biofuels

- ❖ Designer Microbes
  - Synthetic algae that release lipids

**Applied Environmental Biotechnology - T...**  
2 months ago

### Transgenesis

- ❖ Transformation by Agrobacterium Method
  - Ti plasmid integrates into the DNA of the host cell, making it an ideal vehicle for transferring recombinant DNA to plant cells

**Applications of Plant Biotechnology - TEA...**  
2 months ago

### Transgenic Methods

- ❖ Pronuclear Injection
  - Animation of Pronuclear Injection

**Advancements in Animal Biotechnology - ...**  
2 months ago

### Cloning Applications

- ❖ Consistent Quality

**Cloning Methods and Applications - TEA ...**

### BLAST

Homo sapiens hemoglobin, beta (HBB), mRNA

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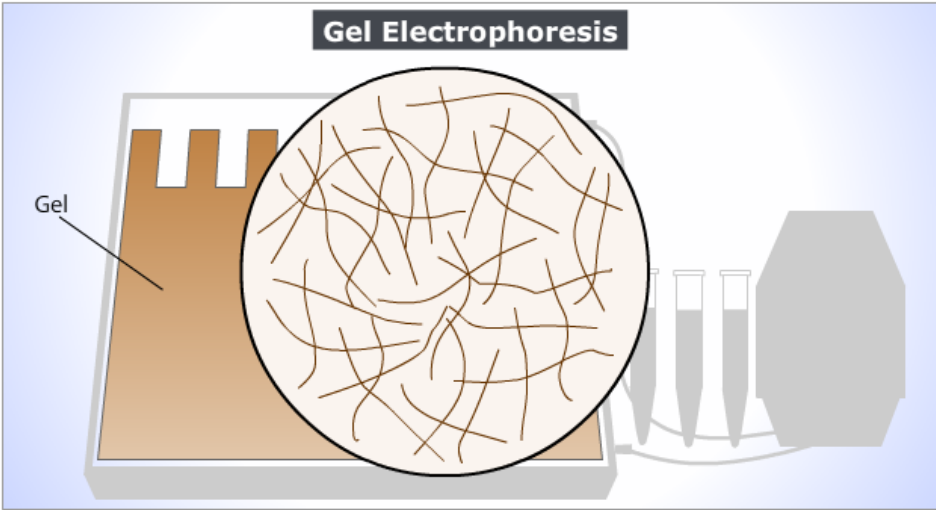
Sequence Viewer
Sequence: HBB
Accession: M_001114.4
Description: Homo sapiens (human)
Reference: M_001114.4
Title: Hemoglobin subunit beta (HBB)
Accession: M_001114.4
Title: Hemoglobin subunit beta (HBB)
Accession: M_001114.4
Title: Hemoglobin subunit beta (HBB)
Accession: M_001114.4
Title: Hemoglobin subunit beta (HBB)
    
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**Bioinformatics - TEA Biotechnology 2.4**

# Interactive Reviews

**Lesson Review I** [Edit Section](#)

### Gel Electrophoresis



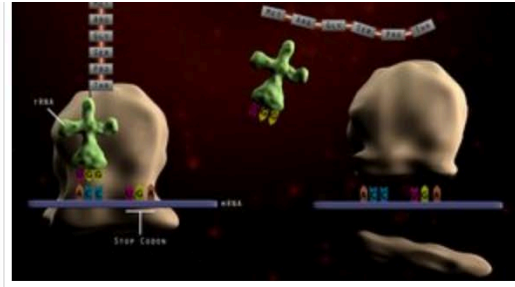
The diagram illustrates the setup for gel electrophoresis. On the left, a rectangular gel slab is shown with four wells at the top. A circular magnifying glass is positioned over the gel, showing a detailed view of a porous network of brown lines representing the gel matrix. To the right of the gel, two test tubes containing liquid are shown, connected to a power source represented by a grey hexagonal shape. A label 'Gel' with a pointer indicates the gel slab.

that effectively trap an aqueous buffer in spaces or pores between the polymers.

Navigation controls: back, play, pause, forward, and a progress bar.

# Sample Podcast

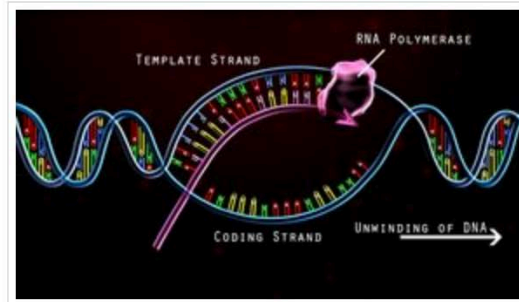
- Notetaking guides
- Students can access anytime anywhere
- Review biology concepts



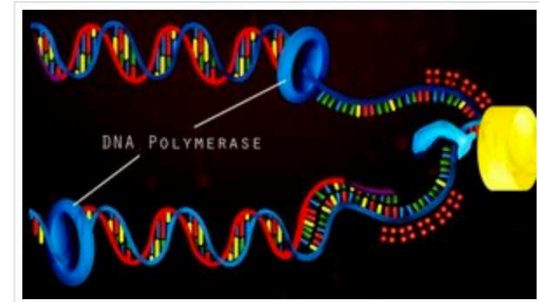
**Protein Synthesis: Translation - TEA Biote...**  
1 month ago



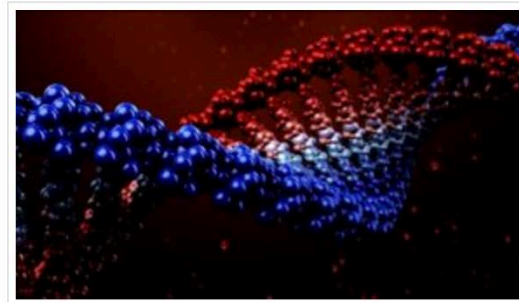
**Protein Structure - TEA Biotechnology Po...**  
1 month ago



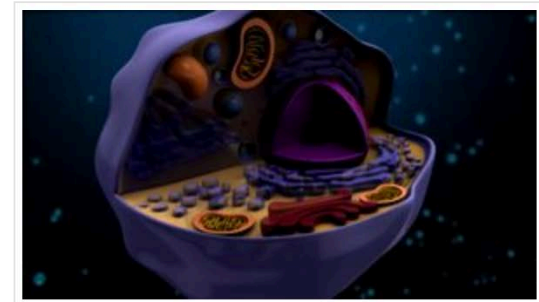
**Protein Synthesis: Transcription - TEA Bio...**  
1 month ago



**DNA Replication - TEA Biotechnology Pod...**  
1 month ago



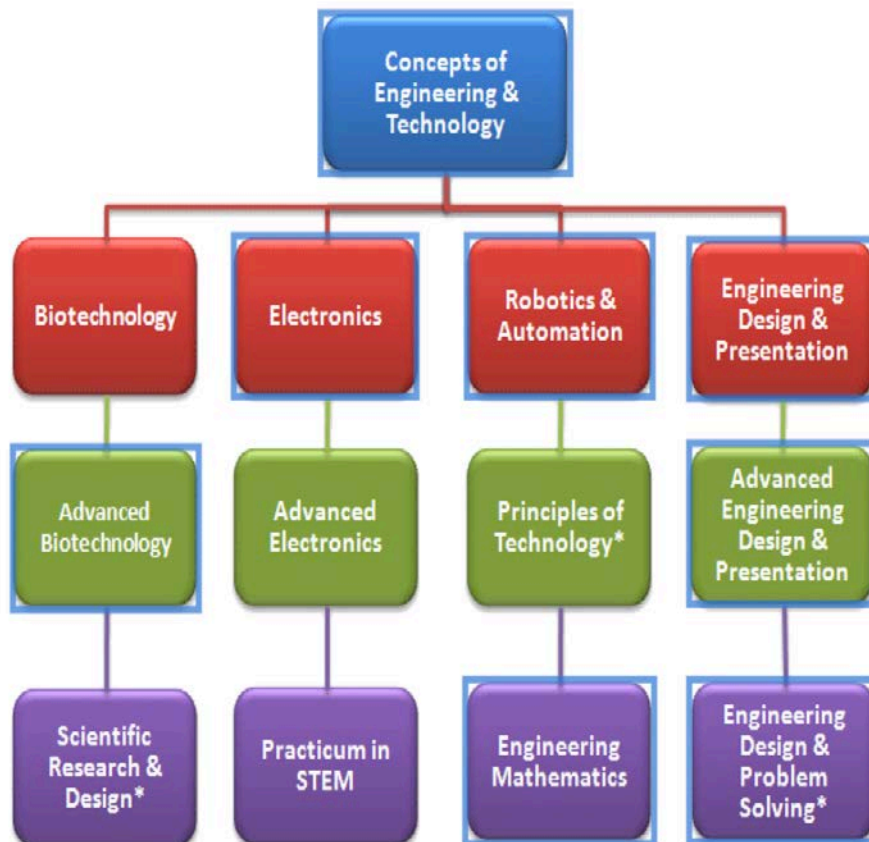
**Structure of DNA and RNA - TEA Biotechn...**



**Cell Structure and Function - TEA Biotech...**

## Curriculum

To access the curriculum, mouse over the image below and click on the courses that indicate there are lessons available.



\*Course approved for science credit

# Summer Training Workshops

## Sample Schedule

1 <sup>st</sup> day Time	Workshop Activity
8:00am – 9:00am	Welcome and Introductions
9:00am – 9:30am	<a href="#">Introduction to Micropipetting</a>
9:30am – 10:30am	<a href="#">Introduction to Electrophoresis</a>
10:30am – 12:30pm	<a href="#">Introduction to Making Solutions</a>
12:30pm – 1:30pm	Lunch
1:30pm – 4:00pm	<a href="#">pGLO Transformation</a>

2 <sup>nd</sup> day Time	Workshop Activity
8:00am – 9:30am	<a href="#">Plasmid Isolation</a>
9:30am – 11:00pm	<a href="#">Restriction Enzyme Activity</a>
11:00pm – 11:30pm	<a href="#">Set up PCR for CSI Activity</a>
11:30pm – 12:30pm	Lunch
12:30pm-1:30 pm	Complete CSI PCR Activity

1:30pm-3:00pm	<a href="#">Protein Purification –column chromatography</a>
3:00pm-4:00pm	<a href="#">ELISA</a>

3 <sup>rd</sup> day Time	Workshop Activity
8:00am – 9:30am	<a href="#">SDS-PAGE</a>
9:30am – 11:30am	<a href="#">DNA Barcoding-DNA Isolation</a>
11:30pm – 12:30pm	Lunch
12:30pm – 1:30pm	Explore Teaching Resources
2:00pm – 4:00pm	Company Tour

4 <sup>th</sup> day Time	Workshop Activity
8:00am – 11:30am	DNA Barcoding - PCR
11:30pm – 12:30pm	Lunch
12:30pm – 3:30pm	Sequencing and Bioinformatics



# Perkins Leadership Grant to Establish Texas Biotechnology Mentor Network

- ACC recruited faculty from 6 Texas Community Colleges and Regional Centers to serve as Mentors.
- 12 High school biotechnology teachers located in the service area of these colleges were also recruited to participate. These teachers will be mentored and trained by the College mentor in their service area.
- These 12 teachers will then become Master Teachers and will agree to mentor other high school biotechnology teachers in their districts as a "Pay it Forward" strategy for sustainability.

# Perkins Leadership Grant, cont.

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- Materials were delivered to assist each service area to host a Career Day to increase student interest in biotech and form relationships between high school teachers and local industry
- A website has been created to serve as a hub for resources and communication for biotechnology teachers across the state.
  - <http://txbiotech1.weebly.com/>



## Biotech Virtual Mentors

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ACC K-12 Biotechnology program

Perkins Leadership Grant

Workshops

Resources

Articu



### WELCOME

Please subscribe to this blog page below to be alerted via email with new resources, projects, PD opportunities and workshop information.

[Workshop Webpage](#)

### Biotech 1 and Biotech 2 TEKS

11/20/2014

0 Comments

Proposed TEKS here

Found under STEM:

[http://tea.texas.gov/Curriculum\\_and\\_Instructional\\_Programs/Curriculum\\_Standards/Career\\_and\\_Technical\\_Education\\_%28CTE%29\\_Texas\\_Essential\\_Knowledge\\_and\\_Skills/](http://tea.texas.gov/Curriculum_and_Instructional_Programs/Curriculum_Standards/Career_and_Technical_Education_%28CTE%29_Texas_Essential_Knowledge_and_Skills/)

0 Comments

Subscribe to our mailing list

# Perkins Leadership Grant, cont.

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- Made site visits to each service area
- Purpose
  - To deliver equipment packages to teachers
  - To visit high school classrooms to determine their resources as a first step in forming articulation agreements

# Next Steps

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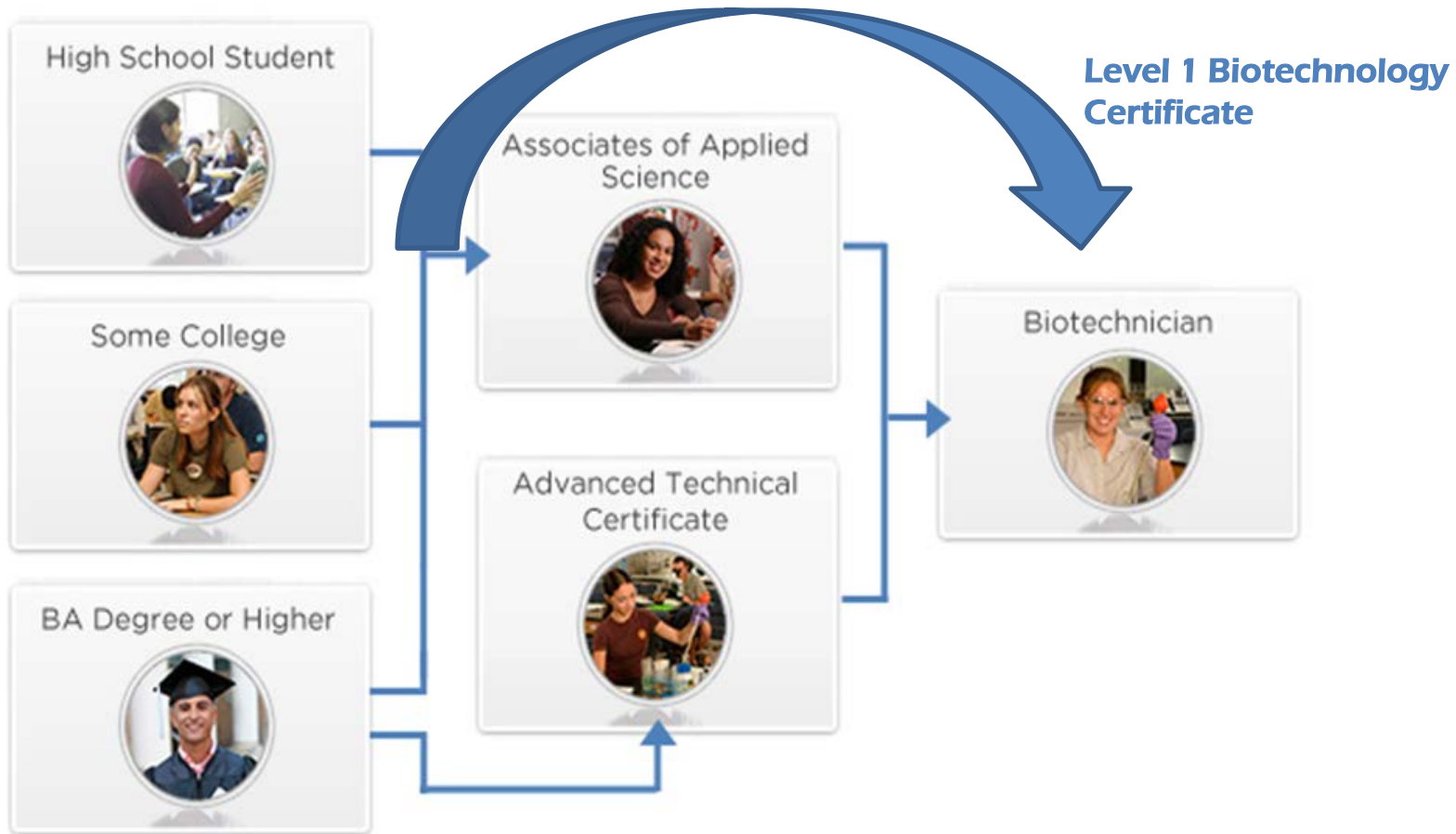
- Established a NSF funded ATE Biotechnology Center in Texas to help accomplish goals:
  - Increase the number of Biotechnology and Advanced Biotechnology courses offered in the state
  - More support for teachers (Equipment Depot, Training, Increase the number of teachers with 18 graduate hours in biotech)
  - Establish entry level certificate at the high school level

# Rationale for Project

- The Biotech Industry is growing and needs trained personnel from Texas



# Pathways to a Biotechnology Job



# Proposed TEKS: Biotech 1 and Biotech 2

Biotechnology Course Changes				
Current course	Biotechnology	Advanced Biotechnology	<del>none</del>	SCI RES &DES (on campus) Practicum in STEM (internship)
Proposed Courses	<p>Concepts of Bioscience</p> <p>CREDIT: 1 Tech</p> <p>Only used in STEM pathways</p> <p>Although 1 credit, can be taught as ½ semester. Kids can get 1 credit/semester if all teks taught. Seat time DOES not EQUAL CREDIT time.</p>	<p>Biotechnology 1</p> <p>CREDIT: 1 Science/CTE</p> <p>Can be used in STEM pathway, health science pathway, Agricultural pathway</p> <p>Can also be used as 3<sup>rd</sup> /4<sup>th</sup> year science course for graduation plans</p>	<p>Biotechnology 2</p> <p>CREDIT; 1 Science /CTE</p>	
Reasoning	<p>Course currently titled Biotechnology is not a lab based/science course. TEKS are written as an introductory course to the field biotechnology. Analogous to Concepts of Eng and Technology course</p>	<p>TEKS stay the same as currently approved <del>Adv Biotech course</del>, just change the name to allow for an extended sequence if students choose it as a career option.</p> <p>This course stays as a</p>	<p>TEKS based on SCI RES &amp; DES course with advanced biotechnology lab skills.</p> <p>Allows for extended study in biotechnology for students considering this occupation as a career</p>	
Articulation with college courses	NONE	BIOL 1414* Introduction to Biotechnology I	BIOL 1415* Introduction to Biotechnology II	BITC 2486/2487* <a href="#">Internship-Biology Technician/Biotechnology Laboratory Technician I</a>

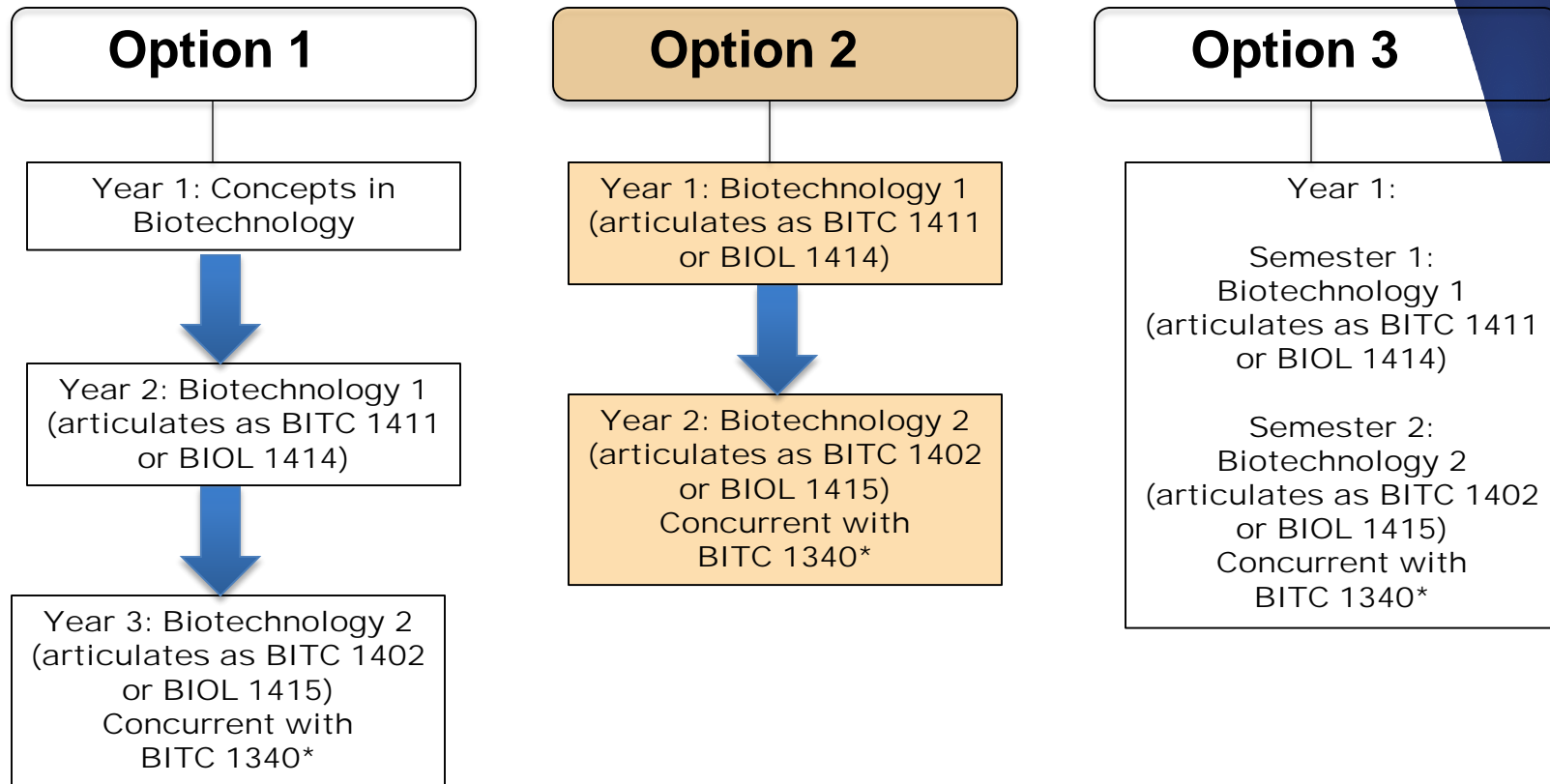
# Performance Acknowledgements - SBOE Rule

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A student may earn a performance acknowledgment on the student's diploma and transcript for outstanding performance in a dual credit course by successfully completing:

- (1) at least 12 hours of college academic courses, including those taken for dual credit as part of the Texas core curriculum, and advanced technical credit courses, including locally articulated courses, with a grade of the equivalent of 3.0 or higher on a scale of 4.0 or
- (2) an associate degree while in high school

## Pacing Options for the Biotech Pathway

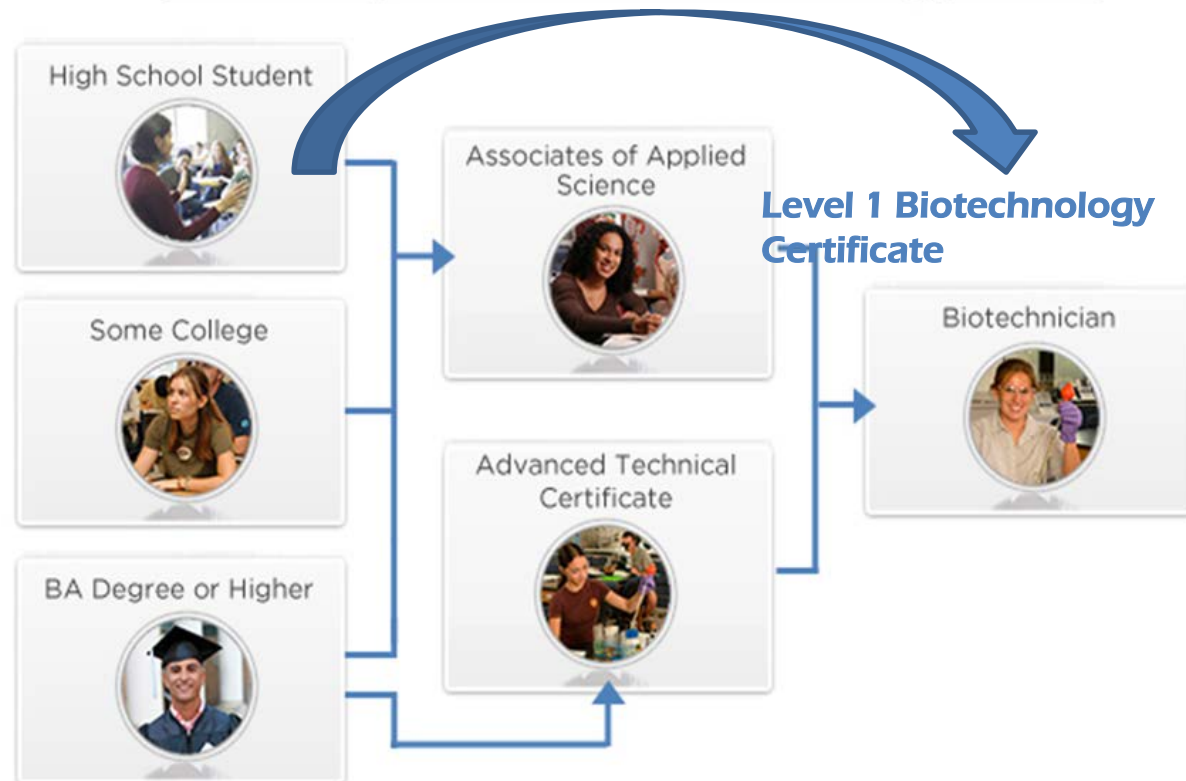


\*BITC 1340 is a 16 week online CE course taught through Austin Community College



- High school credit
  - 4<sup>th</sup> year science course
- College Credit
  - Credit in Escrow
  - Dual Credit

## Pathways to a Biotechnology Job



# Biotechnology Certificate

- Students that successfully complete all three required courses (**Biol 1414**, **Biol 1415**, and **BITC 1340**) are eligible to take the Level I Certification Exam.
- The Level I Certification Exam is currently being developed with ACC faculty and Biotechnology Industry Partners and will be available for the first cohort to complete this pathway.
- The Certification Exam will be an **industry-recognized** exam that assesses core skills and knowledge sets identified by Texas's Biotechnology industry, and represented within the academic and performance standards of the courses that comprise the Level I Certificate Pathway.
- Satisfactory performance on the Certification Exam will be the final step in the pathway for earning a **Level I Biotechnology Certificate**.

# Florida Biotechnology Certificate



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Biotechnician Assistant  
Credential (BACE)

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## Biotechnician Assistant Credentialing Exam (BACE)

The Biotechnician Assistant Credentialing Exam (BACE) is an industry-recognized exam designed to assess core skills and knowledge sets identified by industry, and represented within the academic and performance standards of Florida's secondary Biotechnology program. The test has been vetted by the state's industry organization BioFlorida, representing representing more than 3,000 companies and research organizations in the biotechnology, pharmaceuticals, medical devices and bioagriculture sectors.

### About the Biotechnology Certification Program

The Biotechnician Assistant Credentialing Exam (BACE) is offered by Biotility at The University of Florida's Center of Excellence for Regenerative Health Biotechnology (UF CERHB). The exam was developed to reflect competencies and skills outlined by the performance and academic standards of Florida's secondary Industrial Biotechnology Program (#8736000), which are in turn based on Florida's industry-described requirements necessary for this entry-level position. Students will be issued a Biotechnician Assistant credential from Biotility for successful completion of both the online and practical components of the exam. Schools may use the BACE for the end-of-program validation required by the Career and Professional Education (CAPE) Act.

The knowledge exam can be administered by an approved proctor via a computer-based online system. The practical exam assesses technical workplace skills, and is performed at an approved Exam Site under the observation of an approved Skills Evaluator. The BACE program and procedures are covered in this manual. It is critical that that Site Coordinators, Proctors, and Skills Evaluators implement the exam procedures as described to ensure the integrity of the exam and of student outcomes.

### Certification Standards

The certification standards for the Biotechnician Assistant Credentialing Exam include the Academic Knowledge and CTE Performance Standards and Benchmarks taught in the Industrial Biotechnology program at the secondary level. Certified individuals have a knowledge and skill set applicable to entry level positions in the biotechnology industry.

[Industrial Biotechnology Academic Knowledge and CTE Performance Standards](#)

# Contact Information and Questions

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- Linnea Fletcher: [linneaf@austincc.edu](mailto:linneaf@austincc.edu)
- Angela Wheeler: [awheeler@austincc.edu](mailto:awheeler@austincc.edu)
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AC2 BIO-LINK  
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# The Texas Biotechnology Pathway





# BITC2487: Internship Handbook & Course Syllabus

Spring 2015  
Section 23378-002

Instructor:

Jack O'Grady, M.S., Associate Professor

## Table of Contents

Introduction .....	3
I. Instructor Contact Information.....	3
II. Course Description.....	3
III. Course Objectives & Outcomes BITC 2487 Internships .....	5
IV. Summary of Course Pre-Requisite Activities .....	5
Expectations for the Internship (& course rationale) .....	6
I. Student Intern Expectations .....	6
II. Industry/Research Institution Expectations.....	8
III. Expectations for ACC Biotechnology Program.....	9
BITC2487 Internship Course Details.....	10
I. Prerequisites .....	10
II. Course Goals and Objectives .....	10
III. Instructional Methodology .....	10
IV. Required Materials.....	11
V. Course Schedule.....	11
VI. Grading Criteria.....	12
VII. Course Policies: .....	15
Appendix: Forms .....	21
I. STUDENT INFORMATION FORM .....	21
II. CONTACT INFORMATION.....	23
III. Initial Internship Meeting Form .....	25
IV. Student Evaluation Form .....	27
V. ATTENDANCE LOG.....	29



## Introduction

This document will serve as your course syllabus and detailed instructional manual. You are required to read and abide by the policies and procedures outlined in this manual.

### I. Instructor Contact Information

**Instructor:** Jack O’Grady, M.S.  
**Office Phone:** 512-223-0237  
**Office Location:** RRC 3117.03  
**Office Hours:** Tuesday 8:30-11:30am *or by appointment.*  
**E-mail:** [jack.ogrady@austincc.edu](mailto:jack.ogrady@austincc.edu)

**Department Chair:** Linnea Fletcher, PhD  
**Office Phone:** 512-223-5912  
**Office Location:** EVC9322  
**E-mail:** [linneaf@austincc.edu](mailto:linneaf@austincc.edu)

### II. Course Description

*Course Description for BITC 2487 from ACC Catalog:*

*“This is a formal internship experience where students are closely supervised under an industry mentor and apply their advanced biotechnology knowledge and training in a bioscience laboratory. This is an experience external to the college for an advanced student in a specialized field involving a written agreement between the educational institution and a business or industry partner. Mentored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the college that directly relate to specific occupational outcomes. This may be paid or unpaid experience. Capstone course for AAS and ATC. Student Accident Insurance Fee: \$1.00 Skills: O Prerequisites: Assigned by the College. Course Type: W”*

This course is designed to help you to transition from being a student to beginning your career as a biotechnician. You will apply the academic and technical competencies that you have learned in the classroom to real world problems. You will also develop the employability skills that will assist you in your chosen field. For many, it is the most exciting time of your ACC experience; the culmination of many hours of hard work as a student and the beginning of many years of satisfying employment.

This short manual includes your course syllabus, homework assignments and outlines important policies and procedures designed to clarify the benefits and duties of each of the parties involved in the internship: the student intern, the company lab supervisor and the ACC faculty member. It is divided into five sections. The first section details the expectations for the intern, the intern’s supervisor, and the course instructor. The second section contains the details of the ACC course and acts as a syllabus. The third section contains the competencies for the Internship II course as outlined by the industry and incorporated into the course. The fourth section outlines the homework assignments. And the last section contains forms.



### III. Course Objectives & Outcomes BITC 2487 Internships

The competency outcomes for this course reflect skills necessary in the biotechnology workforce which emphasize communication skills, punctuality, and teamwork in addition to biotechnology skills. The State of Texas has adopted the Washington Skill Standards for Biotechnology. The ACC Biotechnology Program has formally adopted these standards and is recognized by the Texas Skill Standards Board. Our TSSB certification is posted here: <http://www.tssb.org/ctc/acc>. Each course in the Biotechnology Program fulfills a specific set of skill standards. Those can be found here: <http://www.austincc.edu/biotech/skillstandards.php>

B2 Perform assays and experiments	B3 Troubleshoot experiments and equipment	B4 Perform data analysis	B5 Communicate results	C1 Participate in employer-sponsored safety training	C4 Suggest continuous improvements	C5 Coordinate with work team
C6 Provide orientation and training for other employees	C7 Handle and dispose of hazardous materials	C8 Maintain security	D1 Maintain lab notebook	D2 Create documents		

### IV. Summary of Course Pre-Requisite Activities

This manual has been written to help you not only with a successful completion of the internship course but also a successful transition into the workforce. The following is a short check list of items that you **must complete prior to enrolling in the internship course**.

- Complete all your course requirements, prior to the internship.** You will not be a full-time student with this course. You may need to work 20hrs/wk minimum to complete your requirements for the internship!
- Perform a degree audit and apply to graduate.** This will ensure any transfer credits have been accepted, your CE courses have been transferred to credit and you have completed the course requirements for the degree you're seeking
- Complete your resume.** This process should have started in BIOL1414 and been carried throughout the program. You should have a polished and ready-to-go resume.
- Prepare for your interview.** You should have already had a mock interview with your instructor in BIOL1415. We encourage you to participate in several mock interviews with different faculty.
- Finding an internship is your responsibility.** We may have industry partners actively seeking interns, or other opportunities available. When we do, we pass these on to our students immediately. However, finding and securing an internship is your responsibility. You will need to start looking for your internship the semester prior to your internship.
- Let us know if you have any outstanding commitments** that may interfere with your placement. This includes a full or part-time job, other courses you need to take to graduate, especially if they are during the day time when you may be expected to be on the job.
- Make industry contacts.** The semester prior to your internship you are encouraged to attend biotech social events to make contacts. This may include the BioBash, industry partner Tours, biotech program workshops, industry partner lectures and biotech program celebrations.

# Expectations for the Internship (& course rationale)

## I. Student Intern Expectations

- ✓ Learn how to create a resume that accurately and clearly presents competencies
- ✓ Learn how to prepare for and participate in a job interview
- ✓ Identify the different biotechnology companies in our local area
- ✓ Work at a company for a semester for a minimum of 192 total hours
- ✓ Demonstrate employability skills; including safely and competently working in a biosciences job
- ✓ Demonstrate the academic and technical competencies of the position
- ✓ Learn about how a biotechnology (or biotechnology-related) company operates
- ✓ Present your internship experiences to the Biotechnology department in the form of a formal presentation and report
- ✓ Make contacts in the local biotechnology community

The internship should be a training experience in preparation for working in the field as a biotechnician. You, the student, can expect to learn about the host company and then to work at that company on a part-time basis. An employee of that company will supervise this work with regular evaluations in the competencies detailed in the appendix of this manual. This will include employability competencies such as punctuality, teamwork and appropriate demeanor as well as the academic and technical competencies that you have learned in the classroom during your Biotechnology courses. You have put in many hours as a student learning about biotechnology, now is the time to put that knowledge and experience to work!

### What are my time commitments for this course?

1. Although the minimum internship requirement is ***192 hours working in a bioscience laboratory***, the maximum requirement is 384 hours. ***Plan on spending a minimum of 15-20 hrs per week***, starting on the first day of class, until the last day of class on the schedule. Do not plan other personal items that will interfere with this.
2. There is one ***mandatory in-person class meeting*** in the first week of class. During this meeting the instructor will review the manual, assignments, and discuss potential internship or job opportunities in the area.
3. You are required to give a ***department-wide presentation discussing your internship experience***. You are required to attend all the internship presentations for the class.
4. This course is meant to be a capstone course, meaning, taken at the end of all of your coursework. ***Students must have successfully completed the majority of their credit hours before enrolling in BITC 2487***. You may be permitted to co-enroll in your ***final semester*** with one remaining course; however, you cannot drop this coursework to stay enrolled in BITC2487. Exceptions may be granted and are up to the Biotechnology Department Chair and/or the Instructor.
  - a. It is important that all your coursework be completed to allow you the best possible internship experience. The required coursework in the Biotechnology Program is

designed to prepare you for direct entry into the workforce. Missing any upper level biotechnology coursework will limit your internship opportunities as your internship presents an opportunity to gain work experience in areas you have been trained. For example, you will not be qualified to apply for an internship requiring real time PCR training if you have not already completed BITC2441 where you gain this training.

- b. Co-enrolling in multiple courses with your internship is discouraged. Your internship opportunities are limited when you have a restricted schedule due to other course commitments. We recommend enrolling in on-line, night or weekend courses only if a course is necessary for graduation. If multiple courses are needed to graduate consider taking your internship in the following semester.

### **Can I perform more than one internship?**

It is recommended that you focus your attention on ONE internship experience. This is particularly important if you have other course commitments, personal commitments or job commitments. It is required you perform 20hrs/week on ONE internship experience. If you have no other commitments you may perform up to 40hrs per week at the same internship (if the company agrees) or you may take on another non-conflicting internship. This is with instructor permission only. The goal is for you to have a solid, cohesive internship experience.

### **How do I find an internship?**

*You will begin by consulting with your ACC instructor the SEMESTER PRIOR your internship* to review your resume for submission to our industry, governmental, and academic partners who have positions available for interns. This is when you should share any special concerns about your internship, such as days of the week and hours during the day that are the best for you. Your instructor will try to meet these scheduling requests, but internship hours are generally available Monday through Friday, from 8 AM until 5 PM (in 4 hour min blocks). Most companies will require that you keep a regular schedule of days and hours of days that they can expect you to be there.

Finding an internship is ultimately your responsibility. It will be important you take an active role in finding an internship you like. Best internships, and paid internships usually are the first to fill, and are filled prior to the semester starting.

*You may use a full time job as an internship. We encourage our students to seek full time employment!*

### **What happens if the internship arrangement does not work out?**

In rare instances, the internship arrangement may not be working out for you or for the company. If this occurs, first talk to your lab supervisor and discuss your problems with them directly. Often something can be worked out so that you can successfully complete your internship within the company. If you do not get a satisfactory resolution or you are unable to discuss this issue with your lab supervisor, be sure to discuss this with the ACC faculty advisor. *You may not quit your internship without talking to your instructor first*. And if you ever feel unsafe in your internship be sure to contact your faculty advisor immediately. Your safety is of paramount importance at all times.

### **Can I end my internship after 192 hours?**

No, you may not end your internship after the minimum hour requirement. This is a whole semester course, and commitment, 192hr is the minimum (388 maximum). You must meet the commitment

outlined in your acceptance email – the start, end date, hours worked. If you want to change that you must notify your instructor first, then negotiate that with the internship mentor. Everything must be documented on email. *It is in your best interest to work as many hours for the entire semester to get the most out of this very valuable opportunity.*

### **Is this course graded?**

Yes! You will be graded on your performance as indicated below. This will include not just your internship evaluations but your homework assignments, weekly internship attendance logs, notebook, and your final report and presentation. The grades and evaluations that you receive will be very important as you prepare to obtain a job as a biotechnician. Your interning company is under no obligation to hire you, but the letters of recommendation you receive will go a long way to help you obtain a permanent full time position in this field.

### **Final Thoughts**

For most people, the internship is one of the most educational and rewarding courses you will take. You are bridging the gap between student and employee and are embarking on your chosen career. The more you put into this experience (time, effort and consideration) the more enjoyable and beneficial the experience will be.

## **II. Industry/Research Institution Expectations**

- ✓ Provide mentorship and a bioscience laboratory workplace employment for 192 hours minimum during the semester. This may be paid or unpaid.
- ✓ Teach the student employability skills through active mentorship and training
- ✓ Provide workplace feedback in the form of two formal evaluations
- ✓ Provide a safe work environment and provide work-sponsored safety training
- ✓ Work actively with the student and approve the content of the intern's final formal written report and presentation

The presence of interns in a company is a very rewarding experience. These students can bring enthusiasm, a fresh perspective and provide valuable assistance to the laboratory. For many interns this is their first working experience in their chosen profession. While some of the older students have worked elsewhere and have good employability skills, for some, this will be their first job. But nearly all the interns will be working in a lab for the first time and it is useful to keep this in mind. What interns lack in experience they make up in enthusiasm. They are eager to learn and eager to take on new tasks. Most interns have not had much practice repeating experiments and so enjoy learning about the importance of accuracy and reproducibility and are not easily bored. The following are requirements of our industry partners. If you have any questions or concerns, please contact us and we'll be happy to talk with you.

1. Although our interns receive extensive safety training, you must provide interns with workplace-specific safety training that includes any hazards that pertain to the job.
2. Interns need to be shown what is expected of them very clearly. They have had considerable hands-on training in the ACC Biotechnology Program, but they will need to have clear instructions on the specific techniques and procedures that your organization uses.

3. Regular feedback is a valuable part of the intern's education. The ACC biotechnology program asks that you provide this feedback in the form of two formal written and sit-down evaluations. If you are having workplace issues with the intern, this evaluation is an excellent tool to address them. Evaluation forms are located in the appendix, but you may also use your own company evaluations if you prefer. **If any serious problems arise during the internship, please contact the ACC faculty member immediately so that we can jointly work out a resolution as quickly as possible.**
4. The student is expected to keep weekly attendance logs. The hours that the intern works at your company are mutually agreed upon prior to them starting. The intern is expected to work at your company 15-20 hours each week for a minimum of 192 hours over the entire semester. You may negotiate with the student the days they work, how many hours a day, when they start their internship and stop their internship. It's very important that you are specific with them about this commitment to avoid misunderstanding. Also, you may negotiate additional hours (more than 192hrs), or starting before or continuing after the semester, or hiring them full time during their internship. Most students will work far above the 192hr minimum to get the most from their experience.
5. If needed, a company can request that the intern sign a non-disclosure agreement. This should be done during the initial meeting at the beginning of the semester or at the intern's first day. The interns are required to write up their experience in a scientific report and give a department presentation on their internship. We ask you work closely with the intern to avoid any accidental disclosure of proprietary information. The integrity of your work is very important to us.
6. Interns are usually unpaid and a foreign student may perform an internship without changing visa status. Furthermore, by hosting an intern, the company makes no stated or implied agreement to hire that intern as an employee of that company. However, we ask that you state clearly prior to the intern committing to the internship if it will be paid or unpaid, rate of pay and approximate hours per week they will be paid. NOTE: Interns may use a full time job as their internship, and are free to accept a full time position with the internship company anytime during, before or after their internship.

### **III. Expectations for ACC Biotechnology Program**

- ✓ Assist the student in finding a suitable internship with a safe working environment
- ✓ Assist the student in finalizing and polishing a resume
- ✓ Teach the students how to prepare for and participate in a job interview
- ✓ Maintain regular contact with the company and the intern during the semester
- ✓ Grade assignments, including internship notebook, formal report and presentation

The Internship II is the capstone course of ACC's Biotechnology program leading to the A.A.S. degree, and Advanced Technical Certificate. Biotechnology training at ACC is combination of both strong academic skills and workforce competencies. This emphasis on the combination of academics and workforce is unusual; most other community colleges focus primarily on workforce and most universities focus primarily on academics. But it has the advantage of graduating a well-trained biotechnician who is able to establish satisfactory careers for themselves in this exciting emerging field.

The ACC internship faculty member will work actively with the intern and industry partner to establish the parameters of the internship, including the times and days to work and to ensure that any necessary forms are signed. The ACC faculty member is responsible for helping to ensure that the internships

benefit all the parties involved. The faculty will also provide the interns with guidance in interviewing techniques, polishing their final resumes and finding employment in the Austin area. Furthermore, the faculty member will maintain the interns' grades as outlined in the syllabus. The faculty member will act as a mediator between the company and the intern and, if necessary, mediate any disputes or difficulties.

## BITC2487 Internship Course Details

### I. Prerequisites

Since the Internship course is a capstone course of the A.A.S. degree and the A.T.C in Biotechnology, there are several prerequisites for this course:

- Be enrolled in BITC2487. Students must be enrolled in the course and each name must appear on the official reporting class roll. Prior to registration, students should call the biotechnology office and notify the administrator of the intention of enrolling so they may perform a degree audit.
- Have completed all of your degree or certificate requirements. Students must have **successfully** completed all of their credit hours before enrolling in BITC 2487. You will be permitted to co-enroll in one course in the final semester; however, you cannot drop this coursework to stay enrolled in BITC2487. Exceptions may be granted and are up to the Biotechnology Department Chair.

### II. Course Goals and Objectives

By the end of the course the student should be able to:

- ✓ Develop an individual career plan
- ✓ Create a resume and successfully interview for a job
- ✓ Demonstrate work ethic such as confidentiality and punctuality
- ✓ Demonstrate safety skills in the workplace
- ✓ Maintain positive relations with others through teamwork
- ✓ Maintain a work notebook, write a final report and prepare a presentation describing the internship
- ✓ Establish employment contacts in the local biosciences industry

### III. Instructional Methodology

This is an internship where the student will apply the skills (both soft skills and technical skills) in a biotechnology-related (biosciences) work place. The student will meet in the classroom at least twice in the semester, but mainly will meet outside of ACC in the workplace. During the first week of the class the interns will meet in the classroom to discuss course policies and review the syllabus. There is also in-class time during the last week of the semester for final report presentations. The rest of the semester is spent at a company, working 20-40 hours per week for a total of **at least 192 hours** that must fall within the semester start and end dates.



## IV. Required Materials

- Textbooks:** There are no required textbooks for this class, however, you will most likely be required to refer to your course notes, lab manuals, protocols, SOPs and the following textbook depending on the internship placement: ***Seidman & Moore, Basic Laboratory Methods for Biotechnology: Textbook & Laboratory Reference, 2<sup>nd</sup> edition. 2009. Prentice Hall. ISBN: 0321570146***
- Blackboard:** You are **required** to utilize Blackboard for this course. All class materials will be supplied to you through Blackboard, all internship availability postings will be on Blackboard and your assignments will be submitted in Blackboard and you will participate in the discussion board on Blackboard.  
To access Blackboard you need an ACCeID. To activate your ACCeID: <http://www.austincc.edu/acceid/>  
To log on to Blackboard: <https://aconline.austincc.edu/webapps/portal/frameset.jsp>
- Student ID:** You must acquire a student ID to use many ACC services such as the library and learning center. **You may be required to produce a photo student identification card during your internship placement.**
- Email:** You are **required** to communicate with your instructors using your ACCmail account ONLY. To obtain your email account: <http://www.austincc.edu/accmail/> Instructions on forwarding your email to a more regularly monitored email address can be found here. Important! ***See withdraw statement on non-responsiveness!***  
NOTE: If you are a paid student worker you will be assigned a STAFF account.  
***Blackboard will default to your staff account so you will need to access it.***
- Computers:** ***You are required to use a computer with a reliable internet connection*** to complete your homework assignments. If you do not have access to this type of computer equipment and software at home ACC learning lab, library and computer labs are readily available for your use.

## V. Course Schedule

The following schedule is based on a normal 16-week semester and should be adjusted accordingly if the course is offered under another semester plan, such as in the summer. Students will also contribute to assigned Discussion Board forums on Blackboard during the semester.

### ***Prior to & Week 1: Class Introductions and Preparation for Internship***

1. Class review internship policies, procedures, syllabus and assignments – [mandatory in person](#)
2. [Apply to graduate and perform a degree audit](#)
3. Submit a Student Information Form
4. Sit with instructor to review final polished resume
5. Perform mock interview with any ACC instructor
6. Post discussion board assignment
7. Submit career assignment
8. [Finalize internship placement](#) – *the student must send an email to the instructor and cc the internship mentor. You should state you have accepted the internship and briefly include what you may be doing during your internship. Include also the contact information (email and phone number)*

for the industry mentor, the days, and hours you're working, when your start date and end date is, and if it is paid or unpaid. You may not change your internship position once you have made this written commitment to the company and the program.

**NOTE: For summer internships finding an internship must be done PRIOR to the first week of class. If you do not already have an internship lined up, you may be dropped from the course. You will NOT be awarded an incomplete.**

### **Week 2-15: Participating in an Internship**

1. You must work a minimum of 20hrs per week at ONE internship experience.
2. Keep weekly log of hours worked – internship hours must be completed PRIOR to the last week of class
3. Obtain 2 or more Supervisor/Mentor evaluations – One midway, one at the end
4. Schedule with Instructor final project presentation about ¾ way through
5. Write final report and prepare PowerPoint talk – must be approved by your mentor

### **Last week of class: Presentations of Final Reports and PowerPoint talks**

1. All students must attend and participate in Internship Presentations
2. Submit final notebook for grading during your presentation day
3. Capstone class discussion, and complete survey

## **VI. Grading Criteria**

The following is the grading rubric for the Internship II course. Note that all points are given for the evaluations, assignments and reports; there are no tests for this course. The course grade will be based on points earned: Divide total points by 10 to obtain your percent grade. Letter grades are assigned as follows: **90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; below 60% = F**

### **1. Student Resume (100 points)**

Your resume is the way to market yourself for the job that you want in the biotechnology industry. It will also be used in the placement phase of this course to help us to find you the most appropriate position and mentor for your internship work. You will be asked to create a biotechnology resume during your courses in the biotechnology program. When you enter the internship program your resume must already be complete and polished. **After your internship you must add your internship experience into your resume, and add a final copy in your notebook.**

#### **Resume Assignment Completion Instructions:**

1. Schedule an appointment with your instructor in the semester prior to your internship to review your resume. Make any necessary changes based on instructor feedback. Provide your instructor with a finished, polished resume.
2. At the completion of your internship, update your resume with your new work experience.
3. Include a final copy of your resume in your notebook.

### **2. Attendance Log (100 points)**

Students must carefully record the hours that they work in their mentor's laboratory, and the hours recorded must be **approved and verified each week with the mentor's signature**. You MUST do this every week, if you do not, you will be deducted points from your grade. Originals go in your notebook.

### 3. Student Evaluations by Mentor (300 points).

The student must provide the industry mentor with Student Evaluation forms, copied from the form (in the appendix). The mentor must complete the form and send or email a copy to both the student and the instructor, using the contact information provided at the first meeting of student, mentor, and instructor at the beginning of the semester. The student must be evaluated by the mentor at least two times (or more) during the semester. You will be deducted points for late/no evaluations. Include a copy in your notebook, and email your instructor the final evaluation.

### 4. Career Exploration (100 points).

Put some **\*time\*** and thought into where you want to be when you graduate. I encourage you to use your internship as a stepping stone towards your ultimate goals. If you're having a tough time with this, feel free to come see me. **Do not limit your possibilities**. Be creative. Think of the tasks over the last year or two that you've really enjoyed in the Biotech program. There are a lot of different possibilities in this city, so explore! **Take time to do this. This is your future**. Fill out the student information form in the Internship manual, it should give you a start on things to think about.

Investigate at least 3 possible workplaces that you would like to ultimately work at. Do they have job postings? Internship postings? Write a short biography of each of these three places and outline what you want to do there, and why.

#### **Assignment Instructions:**

**Create ONE MS Word document with the following:**

1. Fill out the Student Information Form in the Appendix of the Internship Manual.
2. Write a 250 word statement of your long-term goals.
3. Identify THREE workplaces that help meet your goals. Write a short 200 word biography of each company. Include their contact information and web-page.
4. Find one job posting you want to apply to (Apply to it!). Include a short biography of the company (if not one of the companies in #3), the job title, a short description of the job, contact information for the company and a web-link to the posting.  
NOTE: If you have decided you want to continue your education, use this exploration in that manner. For example, find 3 educational institutions that you may want to transfer to. And APPLY to at least one of them.
5. Upload this to the Career Assignment Drop Box on Blackboard after the first week of class. You are highly encouraged to do this sooner!
6. You will share your long-term goals on the discussion board (see forum).

### 5. Discussion Board Posts (100 points)

Each week students will post on discussion board. Most of the forums will be open topic, but I will have some directed topics (such as the first topic of post where is your internship). This is a great place to get feedback from your peers and see how your peers are doing in their internships. So often the internship is isolating because you are working 20-40hrs a week off campus and you don't get a chance to seek feedback, make career connections, or learn about other career opportunities.

## 6. Internship Notebook (100 points)

Students will maintain a loose-leaf notebook to keep records of their internship experience, as described below. This notebook will be due for grading when you come in for your internship presentation. The notebook is the biotechnician portfolio. It is often used to show employers the level of training and skill the applicant can bring to the job. In addition, the lab notebook is the primary repository of all experimental protocols and results. In fact, the lab notebook is an important legal document in legal disputes over such items as patent infringement.

The Internship course requires a notebook, which may include photocopies of the intern's lab notebook, depending on the nature of the lab work performed and with the permission of the intern's supervisor. For this course, the intern's notebook will be a loose -leaf binder that will contain the following:

- a. **Title Page.** Course information, name, internship information.
- b. **Table of Contents.**
- c. **Contact Information.** This cover sheet contains your name, email and phone numbers as well as the name and contact information for your lab supervisor for the semester in which you took your internship. Forms for this are available in the appendix of this manual.
- d. **Student FINAL resume.** Your resume must be updated with your internship experience.
- e. **Meeting notes.** These are the notes taken during the initial meeting between you, your supervisor and the ACC faculty detailing the times and days of your internship as well as any other special agreements made at this time. A blank Initial Meeting Guideline is provided in the appendix. If the three parties meet at other times, the notes of those meetings should be included as well.
- f. **Attendance log.** Record in the log the dates and times you worked and ask for your mentor's signature on a weekly basis. Do not include lunch breaks unless you are attending meetings or otherwise doing activities that are directly related to your work. You may not include commuting time.
- g. **Evaluation records.** Place a copy of your evaluations in your notebook. Please email your instructor a copy of your final evaluation.
- h. **Lab Notebook.** You may also be asked to keep a lab notebook as part of your duties at your company. Because of confidentiality issues, these lab notes will NOT be a required component of the Intern Notebook. However, if you choose to add copies of your lab notes to your Intern Notebook, **and if you have the approval of your supervisor**, you are encouraged to do so.
- i. **Final Internship Paper & Presentation.** Include a copy of your final internship paper and copies of your presentation slides.
- j. **This Manual.**
- k. **Job Search Notes & Log.** Keep track of your internship and job leads here. If you are applying to higher education, keep track of your application and researching programs here.

## 7. Final Presentation and Report (200 points)

***It is imperative that you work closely with your industry mentor on your presentation and paper so that no proprietary information is accidentally presented.*** Our industry partner's non-disclosure is very important to us and we take this commitment seriously. If you or your mentor have a question about what to present, please have them contact me. The weekly discussion board forum will provide opportunities for you to work on your presentation and paper throughout the semester and share your experiences with your peers as the semester progresses.

**Presentation:** You will give a **15 minute (maximum, no matter how many internships you did)** Power Point presentation on your internship experience to the Biotechnology Department. This may be in a capstone meeting with all the interns. You may be asked to be a guest lecturer or speaker in one of our Biotechnology courses. This would be an excellent opportunity for you to share real-world work experience with new biotechnology students.

Your talk should include a detailed introduction to the company you worked with, a detailed explanation of the work you did at the company (be as scientific and detailed as you are permitted) in addition to discussing specific skills you learned in the Biotechnology Program that were applied in your internship. Include your research and/or project results from your internship if applicable. At the end, include the ways the program prepared you for your internship. Please refer to the presentation rubric for grading information (Total point value is 200 points – 20% of your final grade).

**Final Report:** This is a FORMAL report that will be similar in content to your presentation, using the APA format. You will provide background about the company, scientific background about your internship work, and summarize your scientific work. Include describing the techniques and skills used during your internship. Total point value is 100 points (10% of your final grade).

#### GRADING SUMMARY

ITEM	POINTS
<b>Classroom:</b>	
Resume	100
Career Assignment	100
Notebook	100
Discussion Board	100
<b>Internship:</b>	
Attendance log	100
Student Evaluations by Supervisor/Mentor	300
Final Presentation	100
Report	100
<b>TOTAL</b>	<b>1000</b>

### VII. Course Policies:

In the interest of equality and fairness, all students are required to follow the policies and deadlines described in this syllabus. The existing policies and deadlines make reasonable allowance for emergencies that may arise during the semester. Please discuss them with your instructor.

- 1. Applying to Graduate:** This course is meant to be a capstone course, and as such you should be in your final semester in our program. We are proud to see you graduate and move forward on your new career. I know it's a busy and exciting time for you, but **please remember to apply to graduate.**

This is not automatically done for you and it is imperative to the success of our program that you apply to graduate in the semester you finish your coursework. The application form and deadline to apply can be found here: <http://www.austincc.edu/degrees-and-certificates/earn-a-degree-and-transfer/apply-to-graduate> ***The Biotechnology award that you obtain from our program can help you obtain jobs in the Austin community and nationally as well. It is very important to request this certification when you have completed the course requirements.***

- 2. Attendance and punctuality.** These are important skills to employers, and their importance will also be emphasized in this course. If students cannot attend a class or the work schedule agreed upon at the beginning of the semester, the student is expected to notify the instructor and industry mentor as soon as possible. Your attendance and punctuality should be carefully recorded in your work log. Students who fail to respond to a phone call or an email message within a week may be withdrawn from the course.
- 3. Placement.** All effort will be made for placement of students into positions which match their interests and strengths, but only within the internship positions that are available at the time that the student registers. ***Students must accept the position that is offered to them. Students who refuse a position offered and do not find a suitable position on their own, may receive an F grade or be dropped from the course. This will be at the instructor's discretion.***

You are highly encouraged to actively participate in the internship placement. If the internships available do not meet your goals, you may need to find one that will. You are encouraged to discuss potential internships with your instructor and work actively in finding one for yourself. This is an excellent opportunity to learn the skills needed to find a full time job.

A student who has already found a job in the biotechnology industry suitable for an internship may substitute their paid position for internship credit, at the discretion of the instructor and with the cooperation of the student's immediate supervisor who must submit evaluations to the instructor.

***You may not quit your internship prematurely, or decline the position without consulting your instructor FIRST.*** Doing so may result in receiving a failing (F) grade or being withdrawn from the course. This will be at the instructor's discretion. You must discuss leaving the position with your instructor before notifying the company so you may understand the ramifications of this decision. Your instructor is also a valuable resource for assistance, they here to help you!

- 4. Late Work Policy.** ***Late work is not permitted for this class.*** If your assignments are not completed by the due dates you may be dropped from the course or given a failing grade. Deadlines can be deferred **only** if the student provides the instructor a written request and documentation of an emergency. Upon instructor approval, a new deadline will be set.
- 5. Withdrawals:** It is the responsibility of each student to ensure that his or her name is removed from the roll should they decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should they feel it is necessary. If a student decides to withdraw, they should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

Students who enroll for the third or subsequent time in a course taken since fall, 2002, may be charged a higher tuition rate, for that course. State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

It is your responsibility to determine your grade status in the course at all times and withdraw yourself if you decide to drop the course. Students who are not passing the course before the withdrawal deadline should talk with me about withdrawing themselves from the course. Students not completing all work by the end of the course, and who do not withdraw themselves will receive a letter grade unless they qualify for and have requested an incomplete grade. ***I may not automatically drop you from the course even if you quit coming to class.*** Withdraw Dates: Are posted on the ACC academic calendar: <http://www.austincc.edu/calendars/academic-calendar>

***Students may be withdrawn from this course in the following situations. This will be at the instructor's discretion.***

- a. Not responding to an instructor's email or voice mail message within 72 hours.
- b. Refusing an internship offered.
- c. Quitting an internship early.
- d. Being fired from an internship.
- e. Not submitting required assignments in the first week of class.

- 6. Incomplete Award Policy.** An instructor may award a grade of "I" (Incomplete) if a student was unable to complete all of the objectives for the passing grade in a course. An incomplete grade cannot be carried beyond the established date in the following semester. The completion date is determined by the instructor but may not be later than the final deadline for withdrawal in the subsequent semester.

Note, incomplete grades are rarely given in this class and will be given entirely at the instructor's discretion. In order to get an incomplete grade ("I") in this course you must do all of the following **before the last class meeting:**

- a. Complete 70% of required internship work hours (must show instructor signed log).
- b. Present a valid and well-documented reason submitted in writing.  
***NOTE: At rare times internship hours may not be completed within the semester time-frame. If this occurs, the student may request an incomplete to obtain one extra semester to complete internship requirements. This is entirely at the instructor's discretion.***
- c. Meet with your instructor to discuss what is involved in getting and finishing an incomplete. ***An incomplete grade will not be given for procrastination.*** An Incomplete grade must be completed and paperwork submitted by the due date posted to the official academic schedule the succeeding semester. If not completed by that time, the incomplete becomes a failing grade.
- d. Sign an Incomplete Grade Form, and give it to your instructor prior to the last day of class.

**Reinstatement procedures** will follow those outlined in the current ACC General Catalog.

- 7. ACC Policy Concerning Copyrighted Materials.** All class materials provided on the instructor's web page, Blackboard, CD, and/or in printed form (labs, objectives, assignments, etc.) are copyrighted and may not be reproduced without the written consent of the copyright holder (this may be the

instructor, ACC, or a separate third party entity or publisher). Reproduction consists of photocopying, scanning, copying, or posting files on a server or web site. Students currently registered for this section have permission to print one copy of course materials for their own personal use. No permission is given for posting any course materials on web sites or sharing with anyone not enrolled in this class.

- 8. Scholastic Dishonesty:** A student attending ACC assumes responsibility for conduct compatible with the mission of the college as an educational institution. Students have the responsibility to submit coursework that is the result of their own thought, research, or self-expression. Students must follow all instructions given by faculty or designated college representatives when taking examinations, placement assessments, tests, quizzes, and evaluations. Actions constituting scholastic dishonesty include, but are not limited to, plagiarism, cheating, fabrication, collusion, and falsifying documents. Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an “F” in the course and/or expulsion from the college. See the Student Standards of Conduct and Disciplinary Process and other policies at <http://www.austincc.edu/handbook>

*You are a steward of our program. It is imperative not just for your own personal success, but also for the success of the Biotechnology Program that you take special care to abide by all policies and procedures of both ACC and the company you are placed in.*

- 9. Student Rights and Responsibilities:** Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.
- 10. Statement on Students with Disabilities:** Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through the Office for Students with Disabilities (OSD). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed.

Students who have received approval for accommodations from OSD for this course must provide the instructor with the ‘Notice of Approved Accommodations’ from OSD before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the ‘Notice of Approved Accommodations’ from the student. Students with approved accommodations are encouraged to submit the ‘Notice of Approved Accommodations’ to the instructor at the beginning of the semester because a reasonable amount of time may be needed to prepare and arrange for the accommodations. Additional information about Student Accessibility Services is available at <http://www.austincc.edu/sas>



- 11. Use of ACC Email Communication:** All College e-mail communication to students will be sent solely to the student's ACCmail account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should only expect to receive email communication from their instructor using this account. Likewise, students should use their ACCmail account when communicating with instructors and staff. Instructions for activating an ACCmail account can be found at <http://www.austincc.edu/accmail>
- 12. Safety Policy:** Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Additional information on these can be found at <http://www.austincc.edu/ehs>. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the Emergency Procedures poster and Campus Safety Plan map in each classroom. Additional information about emergency procedures and how to sign up for ACC Emergency Alerts to be notified in the event of a serious emergency can be found at <http://www.austincc.edu/emergency/>.

You are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities.

***Although you have received comprehensive safety training throughout your tenure in ACC's Biotechnology Program, each workplace will have its own specific safety considerations you will need to abide by. Your internship supervisor/mentor will provide you with their company safety policies. Please discuss any safety situations with them and/or your instructor immediately.***

The comprehensive ACC science safety policy can be found at: [http://www.austincc.edu/sci\\_safe](http://www.austincc.edu/sci_safe)

- 13. Testing Center Policy:** Under certain circumstances, an instructor may have students take an examination in a testing center. Students using the Academic Testing Center must govern themselves according to the Student Guide for Use of ACC Testing Centers and should read the entire guide before going to take the exam. To request an exam, one must have:  
[ACC Photo ID](#), Course Abbreviation (e.g., BIOL), Course Number (e.g. 1414), Course Synonym (e.g., 10123), Course Section (e.g., 005), Instructor's Name  
Do NOT bring cell phones to the Testing Center. Having your cell phone in the testing room, regardless of whether it is on or off, will revoke your testing privileges for the remainder of the semester. ACC Testing Center policies can be found at <http://www.austincc.edu/support-and-services/services-for-students/testing-services/instructional-testing>  
**Note: Since there are no exams for this course, the testing center will not be utilized.**
- 14. Student Support & Success Resources (Student & Instructional Services):** ACC strives to provide exemplary support to its students and offers a broad variety of opportunities and services. Information on these services and support systems is available at:  
<http://www.austincc.edu/support-and-services>

- For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, see a Learning Lab Technician at any ACC Learning Lab.
- Links to many student services: <http://www.austincc.edu/current-students>
- ACC Learning Labs provide free tutoring services to all ACC students currently enrolled in the course to be tutored. The tutor schedule for each Learning Lab may be found at: <http://www.austincc.edu/support-and-services/tutoring-and-academic-help>
- The Biotechnology Department offers Open Labs for tutoring and assistance with mastering laboratory skills. Information on open labs and other Biotechnology Department student success initiatives are found at: <http://www.austincc.edu/biotech>
- For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, see a Learning Lab Technician at any ACC Learning Lab. Or contact the helpdesk: <http://www.austincc.edu/helpdesk/>
- The ACC student handbook can be found here: <http://www.austincc.edu/handbook>
- The Biotechnology Program Student Handbook: <http://www.austincc.edu/biotech/studentresources.php>
- For feedback to the Biotechnology program we have provided an anonymous feedback online form. You can find this at our website here: <http://www.austincc.edu/biotech/suggestion.php>

**15. Retraining.** If a student's industry mentor turns in an unsatisfactory rating of the student's performance in the laboratory, the student may be required to attend remedial training at ACC under the supervision of the instructor. This will be done outside of the regular work schedule. This will be up to the discretion of the instructor and the industry mentor. ***You may also request retraining from your instructor if you are not comfortable with technical tasks you are expected to perform at your internship. The Biotechnology Department offers Open Labs for this purpose.***

## Appendix: Forms

### I. STUDENT INFORMATION FORM

**COMPLETE FORM AND TURN IT IN BEFORE OR DURING THE FIRST WEEK OF CLASS:**

Student	ACC ID#	Date
Phone Number	Email Address	Instructor
How many hours per week do you work?	How many credit hours are you taking this semester?	How many hours can you commit to internship each week?

**INDICATE THE DAYS & HOURS YOU ARE AVAILABLE FOR YOUR INTERNSHIP HOURS:**

<i>Weekday</i>	<i>Hours Available</i>
<i>Monday</i>	
<i>Tuesday</i>	
<i>Wednesday</i>	
<i>Thursday</i>	
<i>Friday</i>	
<i>Saturday</i>	
<i>Sunday</i>	

**BIOTECHNOLOGY COURSES COMPLETED:**

<b>Biotechnology Course</b>	<b>Semester completed</b>	<b>Grade received</b>
BIOL1414 Introduction to Biotechnology		
BIOL1415 Biotechnology II		
BITC1240 Quality Assurance For the Biosciences		
BITC2411 Biotechnology Lab Instrumentation		
BITC2431 Cell Culture		
BITC2441 Molecular Biology Techniques		
BITC2350 Bioinformatics		
BITC1491 Manufacturing		

**TO ASSIST YOU IN FINDING AN APPROPRIATE PLACEMENT, PLEASE ANSWER THE FOLLOWING:**

What type of area of biotechnology most interests you for a career choice? Please explain why you are drawn to this type of work.

<p>What biotechnology course did you enjoy the most? Please explain why you found this course especially interesting and fun.</p>
<p>What biotechnology course did you enjoy the least? Please explain why you found this course less interesting and fun.</p>
<p>Do you prefer following carefully written protocols, or do you enjoy designing your own experiments?</p>
<p>Would you prefer a high-profile job that has lots of responsibility and a great potential for career advancement, or would you prefer a job that has less pressure and hours of overtime required at this point in time?</p>

**Self-Assessment**

On a scale of 1-10 (ten being the best), how would you rate yourself in the following categories? Please be reflective and honest with this. We are trying to place you in an appropriate internship. A good match makes a happy intern and a happy employer! We want you to look good!

TASK	Scale (1-10)
Ability to multitask	
Ability to work quickly	
Ability to work accurately	
Ability to catch on to something new	
Ability to follow protocols exactly	
Ability to work effectively in a team	
Ability to work well with difficult people	

## II. CONTACT INFORMATION

### BITC 2487 INTERNSHIP

PRESENT A COMPLETED COPY OF THIS FORM TO YOUR INSTRUCTOR & INDUSTRY MENTOR

NAME: \_\_\_\_\_

EMAIL: \_\_\_\_\_

PHONE: (    ) \_\_\_\_\_ BEST TIME TO CALL: \_\_\_\_\_

INTERNSHIP COMPANY NAME: \_\_\_\_\_

INTERNSHIP COMPANY ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

MENTOR/SUPERVISOR: \_\_\_\_\_

EMAIL: \_\_\_\_\_

PHONE: (    ) \_\_\_\_\_ BEST TIME TO CALL: \_\_\_\_\_

FAX: (    ) \_\_\_\_\_

ACC FACULTY ADVISOR:

JACK O'GRADY, M.S.

ASSOCIATE PROFESSOR, BIOTECHNOLOGY DEPARTMENT

ROUND ROCK CAMPUS

4400 COLLEGE PARK DRIVE, ROUND ROCK, TX 78665

EMAIL: jack.ogrady@austincc.edu

Phone: (512)223-0237



### III. Initial Internship Meeting Form

**PRESENT A COMPLETED COPY OF THIS FORM TO YOUR INSTRUCTOR & INDUSTRY MENTOR**

ATTENDING (NAMES & EMAIL ADDRESSES):

DATE: \_\_\_\_\_

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1. NAME AND EMAIL OF MENTOR / SUPERVISOR

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2. BRIEF DESCRIPTION OF ASSIGNED DUTIES, IF KNOWN

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3. DAYS AND TIMES TO WORK UNDER NORMAL CONDITIONS:

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4. ITEMS SUPPLIED BY STUDENT INTERN

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5. NON-DISCLOSURE AND OTHER FORMS SIGNED BY STUDENT

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6. OTHER REQUIREMENTS

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## IV. Student Evaluation Form

STUDENT'S NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

EVALUATOR'S NAME: \_\_\_\_\_

**INSTRUCTIONS:**

MENTOR: PLEASE FILL OUT THIS STUDENT EVALUATION AND SCHEDULE A MEETING WITH THE STUDENT TO REVIEW IT IN PERSON. PROVIDE THE STUDENT WITH A COPY. THERE IS A MINIMUM OF TWO EVALUATIONS, ONE MID-WAY AND ONE AT THE END OF THE INTERNSHIP.

STUDENT: PLEASE INCLUDE A COPY OF THIS EVALUATION IN YOUR INTERNSHIP NOTEBOOK.

**Please rank the student by circling numbers in the following on a scale of 1 – 5**

Skills	Needs Improvement		Average	Excellent	
	1	2		4	5
A. DEPENDABLE ATTENDANCE AND PUNCTUALITY	1	2	3	4	5
B. GOOD ORGANIZATIONAL SKILLS	1	2	3	4	5
C. GOOD SKILLS FOR WORKING WITH OTHERS, GOOD TEAM WORKER	1	2	3	4	5
D. SAFE WORK HABITS	1	2	3	4	5
E. GOOD COMMUNICATION SKILLS	1	2	3	4	5
F. GOOD DATA COLLECTING SKILLS	1	2	3	4	5
G. GOOD WORKING KNOWLEDGE OF GENERAL LABORATORY EQUIPMENT	1	2	3	4	5
H. RESOURCEFULNESS, ABLE TO WORK INDEPENDENTLY	1	2	3	4	5
I. FOLLOWS PROTOCOLS CAREFULLY	1	2	3	4	5
J. PROFICIENT AT BASIC TECHNIQUES SUCH AS PIPETTING, MICROPIPETTING	1	2	3	4	5
K. PROFICIENT AT BASIC LAB CALCULATIONS SUCH AS DILUTIONS, SOLUTION PREPARATIONS	1	2	3	4	5
L. KEEPS WORK AREA CLEAN AND ORDERLY	1	2	3	4	5

**ANY ADDITIONAL COMMENTS?**



## V. ATTENDANCE LOG

**STUDENT:** \_\_\_\_\_

**MENTOR:** \_\_\_\_\_

DATE	TIME IN	TIME OUT	HOURS WORKED	SIGNATURE



## Thank you for considering the Texas High School Biotechnology Pathway in your school district!

This packet is intended to outline the collaboration and opportunities that the ACC Biotechnology program can bring to your school's CTE Pathway Courses. The High School Dual Enrollment Austin Community College Level I Biotechnology Certificate Pathway is designed to train high school students for entry-level employment in the Texas Biotechnology industry. This industry is well established in Texas and continues to grow which has created a high need for a skilled workforce. The pathway consists of three courses and the curriculum covers the necessary TEKS, industry standards, and associated student assessments validated by Texas Biotechnology industry. Students completing this program can seek entry-level employment directly out of high school or can bridge to the Austin Community College Biotechnology Program to earn a Level II or III certificate.

### Course Articulations with Community College

Articulation Agreements are available between current TEA CTE Courses and your local community if they offer the biotechnology courses in the Table 1. If your local community college does not offer biotechnology courses, you may articulate with Austin Community College from anywhere in the state of Texas.

To view current ACC articulations please visit: <http://www.austincc.edu/acctech/documents/Biotechnology.php>

<b>TEA Course 2015-2017</b>	<b>TEA 2017-2022</b>	<b>ACC Articulated Course</b>	<b>ACC Academic Course</b>
Biotechnology	Concepts in Biotechnology	none	none
Advanced Biotechnology	Biotechnology 1	BITC 1411	BIOL 1414
SCI Res & Des	Biotechnology 2	BITC 1402	BIOL 1415
N/A	N/A	BITC 1340 (online)	BITC 1340 (online)
Problems and Solutions (Health Science) or Practicum in STEM	Problems and Solutions (Health Science) or Practicum in STEM	BITC 2471 (undergraduate Research) or BITC 2486 (Internship)	BITC 2471 (undergraduate Research) or BITC 2486 (Internship)

**Table1: TEA CTE Biotechnology high school and community college articulations**

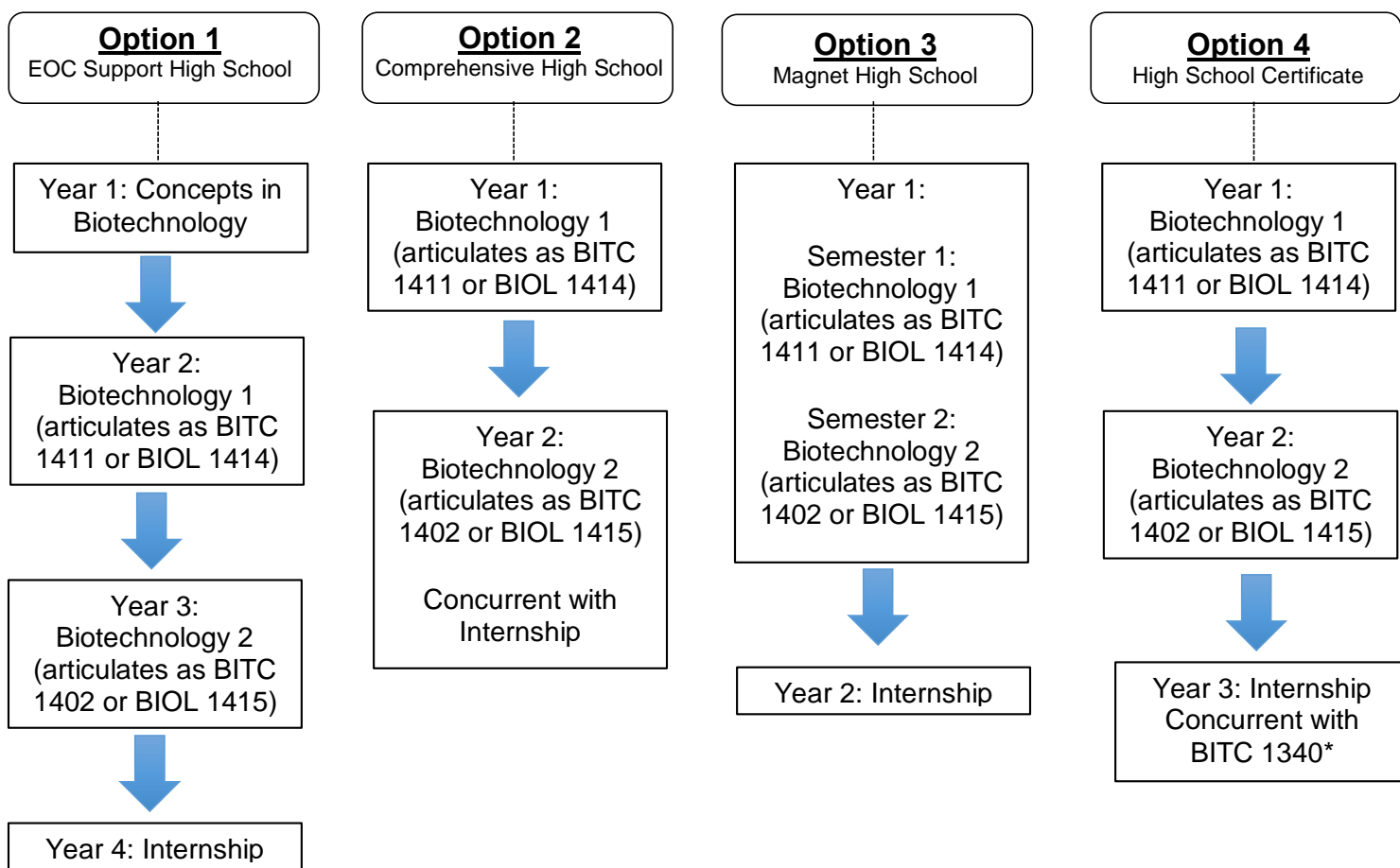
## Multidisciplinary Science Credit Options

TEA Biotechnology Course can be offered as

- an Advanced Science credit in all endorsements at any school
- a course in the Health Science and STEM endorsement plans offered in any order
- as a sequence of courses for a STEM endorsement with certificate option

We can help you design a course sequence specific to your school needs and population.

**Figure 1: Pacing Options for the Biotechnology Pathway**



\*BITC 1340 is a 16 week online CE course taught through Austin Community College

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## Biotechnology Certificate-Level 1

Students that successfully complete all three required courses (Biotechnology 1, Biotechnology 2, and BITC 1340) are eligible to take the Level I Certification Exam. The Level I Certification Exam is currently being developed with ACC faculty and Biotechnology Industry Partners and will be available for the first cohort to complete this pathway. The Certification Exam will be an industry-recognized exam that assesses core skills and knowledge sets identified by Texas's Biotechnology industry, and represented within the academic and performance standards of the courses that comprise the Level I Certificate Pathway. Satisfactory performance on the Certification Exam will be the final step in the pathway for earning a Level I ACC Biotechnology Certificate. The Biotechnology Level 1 Certificate is currently being piloted in two central Texas High school. If your school is interested in offering this certificate please contact Angela Wheeler ([awheeler@austincc.edu](mailto:awheeler@austincc.edu)) to set up a planning meeting.

## Benefits of the Biotechnology Pathway

- Course is an Advanced Science credit for all TEA pathways and endorsement plans
- Course is CTE funded at 700.00/class
- Workforce certification available
- Coursework and labs developed in collaboration with local industry, community colleges and College and Career Readiness
- Additional instructional support in the form of summer workshops, mentoring, and curriculum sharing
- Access to professional development provided by other nationally recognized organizations (e.g. Biotech Institute, Cold Spring Harbor) is provided

## Curriculum

There are several curriculum guides depending on how you will offer the class, your student population and resources available.

Please visit <http://txbiotech1.weebly.com/curriculum.html> to view curriculum that is currently being used in high schools to teach Biotechnology.

In the near future, curriculum will be redesigned/developed for the 2017 CTE TEKS Biotech 1 and Biotech 2.

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## How Students get College Credit

There are two ways students in high school can receive college credit as outlined in Table 1.

In our efforts to continue support for the high school Biotechnology Program, ACC is providing the following options to school districts interested in offering the year-long Biotechnology 1 course. It can be offered either as a dual college credit course, a hybrid of dual college credit and credit-in-escrow, or solely as a credit-in-escrow course.

➤ **Credit in Escrow : BITC 1411 and BITC 1402**

ACCTech (formerly referred to as Tech Prep) is a way to start a college technical major in high school. In an ACCTech program, students begin their course of study in high school and continue in a community or technical college. ACCTech programs combine the academic courses needed for success in college AND technical courses that begin to prepare you for a career.

Students in ACCTech programs can earn from two to 31 hours of college credit that is held in escrow until they graduate from high school. Once they graduate from high school and complete one course at ACC, they can claim their banked credit and complete the remainder of their degree program.

Advantages: can be taught by a certified high school teacher

Limitations: Credit transfer is school and program specific

Find out more here: <http://www.austincc.edu/catpc/educators/index.php>

➤ **Dual Credit: BIOL 1414 and BIOL 1415**

The specific requirements are:

- To take the course for college credit, students will need to pass the math, reading and writing portions of the TSI test. If you are offering the hybrid course, then only students who want to take the course for college credit have to pass the tests. There are TSI exemptions:

Students can be exempt from TSI with any of the below:

**TAKS (11<sup>th</sup>):** ELA 2200 AND 3+ Essay, Math 2200

**ACT:** Composite 23; 19 English, 19 math

**PLAN:** Composite 23; 19 English, 19 math

**PSAT:** 107 Combined CR & M; 50 critical reading, 50 math

**SAT:** 1070 Combined CR & M; 500 critical reading, 500 math

**STAAR:** English III – Level 2; Algebra II – Level 2

- The teacher will have to meet SACs requirements for teaching a workforce course at ACC and ACC's criteria for adjunct faculty. This criteria essentially means the teacher needs to have a Master's degree in a science area or 18 graduate hours in a science area, attend the annual safety training, turn in a portfolio as required, and obtain the minimum amount of professional development training (i.e. ISD professional development training will suffice).



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- The ISD will pay the teacher's salary and there will be no change in scheduling, ACC will schedule the course to match your decision of time. The course will be listed in the ACC semester course schedule, however, only the students at your high school will be allowed to enroll in the course.

## Steps to Implementation

### Fall 2015:

- Determine who will teach the course
- Gather currently available district resources
- Research available articulation agreements

### Spring 2016:

- Contact and meet with your CTE campus manager to discuss:
  - Start-up funds
  - Needs assessments
  - Articulations
  - Travel funds for teacher training
- Sign up for Teacher Training
- Recruit students
- Advertise Courses
- Contact and meet with your community college articulation team
  - Discuss support needed
  - How credit will articulate

### Summer 2016:

- Attend ACC Summer Workshop Training
- Complete TEA Project Share Course required
- Inventory equipment that has been purchased

### Fall 2016:

- Submit needs Assessment form to CTE
- Order consumables


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## Cost for Yearly Consumables

Consumable cost/course/year can be covered CTE allotments (\$700/class)

- BIOL 1414: \$700-\$1000\*
- BIOL 1415: \$700-\$1000\*
- BITC 1340: None
- Internship: Vary

\*Depends on the size of classes

There are several lab options/companies that fulfill the CTE TEKS and ACC Course Objectives ck on this link to view a sample consumable spreadsheet used at a Central Texas High School using BioRad kits.

## Equipment Start Up

Start-up costs can range from \$1,000-\$40,000 depending on support from your community college, local businesses and your district CTE department.

Current high schools have used one or more of the options below to obtain funding:

1. Submit request to the district CTE department for new program start-up cost of 45K.
2. Accumulate equipment over 3 years from CTE needs assessment request.
3. Borrow equipment from local community college or businesses.
4. Use science department equipment. Many science departments already used biotechnology equipment such as micropipettes, electrophoresis gels and PCR machines.
5. Ask the district science department to check out from the regional center and share between multiple campuses.
6. Apply for grants: <http://www.bio-rad.com/webroot/web/pdf/corporate/literature/science-teacher-grants-application.pdf>

We can help you identify resources in your district and local community.

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## Biotechnology Teacher Professional Development

### TEA CTE Core Content Training

All teachers assigned to teach Advanced Biotechnology must participate in a Texas Education Agency (TEA)-approved training prior to teaching the course. The Project Share Biotech Training courses have been unavailable as of September 1st. TEA is preparing to issue a request for proposals (RFP) to select a new platform. Courses will resume when the new platform is selected, and TEA will assist teachers in resuming their online work. Follow @projectshareTX for updates and announcements.

### ACC Advanced Biotechnology Summer Workshop

The Advanced Biotechnology summer workshop serves the purpose of introducing teachers to online curriculum resources that are available to them and also provides teachers with hands-on biotechnology experience. Some workshop modules will be career-centered and explore skills, knowledge, and career paths appropriate for scientists. Other workshop sessions will focus on curriculum implementation strategies. And lastly, there will be workshop sessions to train teachers to use lab equipment and carry out basic biotechnology lab protocols.

The workshop is free with a 25.00 service fee so teachers can receive Continuing Education Credit through ACC.

Please visit <http://txbiotechworkshop.weebly.com/> to view previous workshop agendas, dates and location.

### Ongoing Training

Each year ACC offers continuing education and training for participating high school biotechnology teachers. Funding to attend these workshops may be covered by grants, ACC, and local CTE funds. Below is a list of convention and trainings that Texas High school teachers have attended:

- Bio-Link Summer Fellows
- Stem Cell Training, Madison Wisconsin
- CCURI (Poster Presentation in DC)
- Bio-Man (Biomanufacturing)
- CAST
- Dolan Science Center in Long Island, NY
- Hi-Tech
- ATEP

In addition to training, high school teachers articulating or working with the ACC Biotechnology program are always being recruited to test curriculum, assist in grant projects and pilot new projects. The ACC Biotechnology Department offers high school affiliates many of the same opportunities for professional growth as full time faculty.

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## Virtual PLC

ACC supports biotechnology teachers across the state of Texas through a virtual network to share new, workshops and career opportunities. Please subscribe to their network at <http://txbiotech1.weebly.com/> to stay in the loop and receive opportunities in your area.

## New Biotechnology Center Grant in Texas


Austin Community College was awarded a new NSF funded ATE Center in Biotechnology Grant. The goals of the grant include:

- Increase the number of Biotechnology and Advanced Biotechnology courses offered in the state
- Increase support for teachers through developing equipment depot
- Partnering with the Texas Regional Collaboratives to increase teacher training
- Establish an entry level biotechnician certificate in high schools across Texas.

## Contact Us:

**Angela Wheeler:** Angela is a professor of biology at Austin Community College and serves as the coordinator of outreach and training for the AC2 Bio-Link Regional Center. Angela previously taught biotechnology at a high school in the Austin area and has taught at Austin Community College for 9 years. Angela developed the curriculum for both the high school and college courses she taught and has been contracted by TEA to develop the online professional development training required to teach Advanced Biotechnology. Contact Angela with any questions at [awheeler@austincc.edu](mailto:awheeler@austincc.edu)

**Jennifer Lazare:** Jennifer teaches Advanced Biotechnology at an Austin high school serves as the coordinator of outreach and training for the AC2 Bio-Link Regional Center. Students in Jennifer's class receive dual credit at Austin Community College. Jennifer has also been contracted to develop the online professional development training for Advanced Biotechnology. Contact Jennifer with any questions at [jlazare@austinisd.org](mailto:jlazare@austinisd.org)

 **Linnea Fletcher:** Linnea is the department chair of biotechnology at Austin Community College and serves as the director for the AC2 Bio-Link Regional Center. Contact Linnea with any questions at [linneaf@austincc.edu](mailto:linneaf@austincc.edu)