The Circle of the Center
Center for Plant and Life Sciences

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Mission Statement

St. Louis Community College expands minds and changes lives every day. We create accessible, dynamic learning environments focused on the needs of our diverse communities.
The Circle of the Center...

Agenda

• Activity
• How our location makes a difference
• Many aspects of Outreach
• High School Research
• Equipment/Programs
• Defining Success
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Welcome!

• Gonna Kick things off with an Activity....
How did the Task make you feel?

• Frustrated?

• Anxious? Uneasy?

• Maybe Overwhelmed?

• Task is “unattainable” goal?

Let’s Try Another!
This task?

• Broke it down a little

• Much more manageable

• Could you make one on your own now?

• Could you imagine how you might be able to?

Ok, and maybe just ONE MORE!
Now?

• Team work
• Most basic component
• Instructions provided to take with you
  (practice?)
• Guidance for every step

Complete Origami Box

• How students and non science folks think about science
• Impossible
• They do not understand
• Goal is unattainable
BREAK that....

• Outreach shows them a piece
  – One step
    • Simple
    • Maybe a bit complex too

• Starts the break down of that mentality

Programs – Technical Training

• Show them how to do it
• Can offer advice
• Provide helpful “tips” for success
• Guide helps with important/NOT important
You *Could* Do It Again!

Variables similar to science

- Paper
  - Type
  - Size
  - Dividers
  - Design of paper

- Paper folding
  - Square box
  - Triangle box
  - Hexagonal box

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BRDG Park Location: The Key to CPLS Success

- Centrally located in the region
- Supports multiple district programs
  - Internships for Biotechnology, Horticulture, Engineering and Clinical Lab
- 16 companies at BRDG Park enrich student learning
- Other buildings will bring even more opportunities

Center Imbedded with Industry

- Many start ups in same building
- Lunch area inhabited by all!
Location

- Located within an Industry Building
  - BioResearch and Development Growth Park (BRDG Park)
  - STLCC Center for Plant and Life Sciences (CPLS)
  - 10,500 square feet, 1st floor (great visibility)

- Close to much regional Biotechnology Industry
  - Bayer (formerly Monsanto)
  - Danforth Plant Science Center (and 39 North)
  - Washington and St. Louis Universities
  - Incubator and Post-incubator facilities
    - Helix Center
    - Cortex (Central West End)

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Our Outreach Effort...

• Outreach efforts
  – So many workshops...
  – STEM/Early Career Fairs
  – Community Events
  – Learn By Doing
How Are We Different?

This year’s Bio-Bench Workshop theme was “CRISPR and Friends” - introducing genome editing technology and various biotechnology techniques to enhance biology course content in the classroom. Biotechnology technique hands-on labs included:

- #1: 96-Well Plate Pipetting Lab
- #2: Genome Editing w/CRISPR Cas9 Lab
- #3: pGLO Bacterial Transformation Lab
- #4: GMO Investigator Kit Lab
- #5: Ouchterlony Double Diffusion Lab
- #6: Pop Bead Cloning Lab

(video tutorials provided on thumb drive for educators)

Hijacking Nature's Gene Editing Tool

DDPSC Meyer Lab: Patricia Baldrich, Ph.D. (Postdoc) and Ryan DelPercio
How Are We Different?

Alvin Johnson –
When Chrysler closed in 2008, Alvin was a displaced worker and had the opportunity to go back to school. He chose the biotechnology program because it was the top 10 growing jobs for the 21st century. Alvin completed his AAS Biotechnology in 2015. He currently works as a Research Assistant at the Center for Plant & Life Sciences, STLCC at BRDG Park. His specialty is culturing C.elegans, PCR assays, and outreach support.

Sarah Camp –
Instead of just watching the science documentaries she so enjoyed, Sarah decided to pursue a career in science. Sarah graduated with a AAS Biotechnology in 2018 and currently works at NewLeaf Symbiotics as a Research Assistant. Her specialty is fermentation and optimizing production grade growth media. She’s been with the company for 2 years and loves doing what she does every day — contributing to science.

Brittany Williams –
Becoming more aware of the role science can play in making the world a better place, Brittany completed her AAS Biotechnology in 2016. Combining the best of both worlds for biology and chemistry hands-on learning, Brittany continues to further her education at UMSL, pursuing a Bachelor of Liberal Studies in Biology & Communications. She currently works as a Chemist Operator at Reliable Biopharmaceuticals. Her specialty is processing and packaging of final API products.

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Independent High School Research

• Various local area school districts
  - Rockwood
  - St. Louis City
  - Hazelwood
  - Home schoolers

• Already existed but STEM Outreach +++

• Supported by
  – Funds from Contract Research Budget (reinvest)
  – President’s Funding Initiative (internal)
Research Students

High School Student Research

2019 number is projected based on what we know about this semester and summer

State of the Art Equipment

• Incredible array of available equipment

• Used in classes to give students hands on touch

• Attractive to Start ups partners
Equipment

- NanoDrop Units (2)
- Biofermentation Units (multiple)
- Flow Cytometer/Cell Separator
- Leica Fluorescent Microscope
- Smart Cycler (qPCR)
- Stratagene Mx3005 (qPCR)
- Agilent Bioanalyzer (2) (nucleic acid quality)
- Enspire Plate Reader (luminol, fluorescent)
- BioRad ChemiDoc Imaging System
- Applied Biosystems 3500 Sequencer and Fragment Analyzer
- BioRad QX200 Droplet Digital PCR System

Center for Plant and Life Sciences

- Education is **Number 1**

- Promote STEM and Program Support
  - Life Science Lab Assistant Program
  - Biotechnology Program (2 tracks)
  - Horticulture Program
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Define Success-Change Our Thinking

• Other Contract Research
  — Require self-sustaining
  — Are separated by design (limiting)
  — Cost of space, salaries, equipment service agreements
  — For us, stronger together
    • CRO can help support Center activities
• Everything is Intertwined
  — Most equipment dual purpose (cannot separate)
    • Teaching support
    • Industry support
  — Industry setting very important
    • Costly but essential to success ($$)
We are Successful

- **Success**
  - Measure by something other than $ $
  - We need to show others (economic impact studies?)

- **Biotechnology Students (college)**
  - > 30% biotech interns hired by internship-providing company
  - 94% placement rate of biotechnology students in industry jobs
  - Increase in program enrollment

- **Industry**
  - Provide resources for very small start up companies
  - No part of intellectual property (deal breaker)
  - By helping when small
    - Prove concept
    - GROW
    - Remain local
    - Employ local
The Center’s Timeline

- Biotechnology Program established (Fall 1999)

The Center’s Timeline

- Richard Norris Joins St. Louis Community College (STLCC) (June 2000)
The Center’s Timeline

STLCC Establishes the Center for Plant and Life Sciences
Richard Norris Named Director of District–Wide Center

May 2006

The Center’s Timeline

STLCC Moves the Center for Plant and Life Sciences And Biotechnology Upper Level Program Classes to BioResearch and Development Growth Park (BRDG Park)

October 2009
The Center’s Timeline

Elizabeth Boedeker joins STLCC/CPLS to coordinate on site contract research organization.

The Center’s Timeline

STLCC Established New Program at BRDG Park Life Sciences Laboratory Assistants Program.
The Center’s Timeline

New Educational Outreach Specialist
Lee Douangkeomany
Joins STLCC/CPLS for STEM

The Center’s Timeline

Gregory Langland Joins STLCC
Will Coordinate Both CPLS Programs
Biotechnology and Life Sciences Laboratory Assistants
The Center’s Timeline

Future?