Engaging with the

Discovery Lab

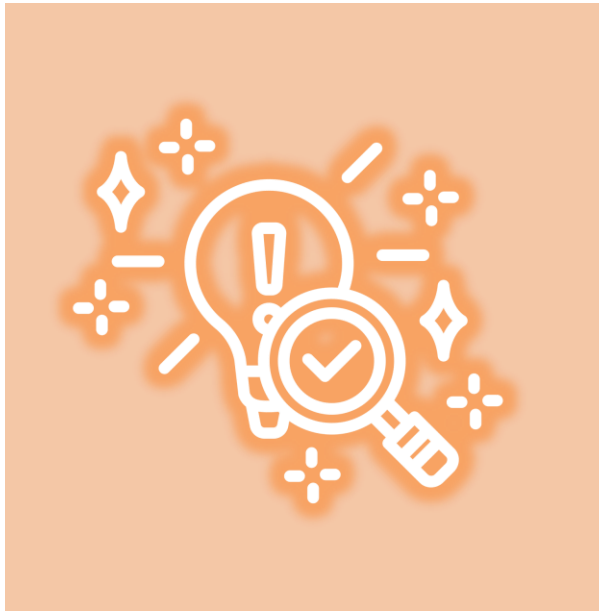
VIRGINIA TECH

xl.vt.edu/discovery-lab.html

discoverylab@vt.edu

@disco_lab_VT

CHALLENGES FACING STEM GRADUATES

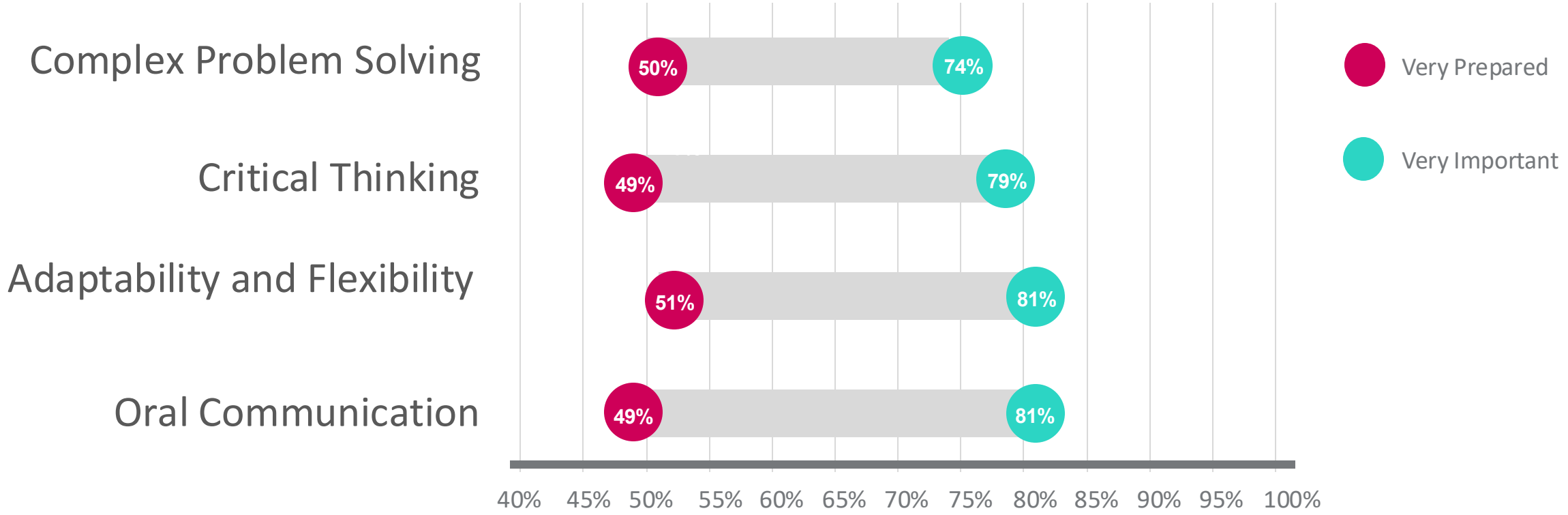


Employers seek problem-solving, data analysis, and interdisciplinary teamwork skills that traditional curricula often overlook.

Many students graduate without hands-on experience solving industry-relevant challenges.

The gap between classroom learning and real-world application leaves students underprepared for the workforce.

Percentages of employers who indicated a skill was "very important" relative to perceptions that students are "very prepared" in that skill



AACU 2023 | n = 1,010 employers

THE DISCOVERY LAB

Interdisciplinary Education

A state-of-the-art, interdisciplinary space in Virginia Tech's USLB

Collaborative Partnerships

Host hands-on research and experiential learning programs between students, faculty, and industry partners

Multi-dimensional Skill Development

Prepare the next generation of workforce ready students with technical, analytical, and durable professional skills

VISION

"We envision the Discovery Lab as a dynamic space that ties traditional classroom academics with hands-on exploration, where students and faculty collaborate on interdisciplinary projects to tackle real-world challenges"

VALUES

- **Student-Centered** | The Discovery Lab will prioritize opportunities that benefit Virginia Tech undergraduate students. Decisions will aim to enhance student learning, research, skill development, and career readiness.
- **Interdisciplinary Problem-Solving** | Leverage methods, and frameworks across multiple disciplines to facilitate collaborative and team-based approaches to address tangible real-world challenges.
- **Resiliency** | Empower students with the skills and mindset to embrace failure and iteration as integral elements of the scientific process and problem-solving.
- **Insight and Continual Learning** | Mobilize data-driven approaches to ensure systematic qualitative and quantitative assessment data guides student, faculty, and industry engagement.
- **Respect** | Foster a welcoming culture of collaboration and dialogue.

WHO CAN ACCESS THE DISCOVERY LAB?

STUDENTS |

- Any student enrolled in a class hosted by the lab, conducting independent projects approved by the Discovery Lab, and/or registered for one of the lab's research experiences

- All student users must complete required training before working in any lab Technical Space

FACULTY / STAFF |

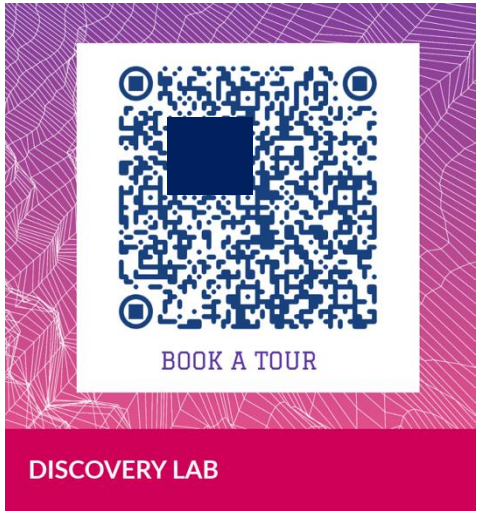
- Any Virginia Tech faculty/staff member from a degree program can submit a request to host a program in the Discovery Lab.

TECHNICAL SPACES

- WET LABS & DIRTY LAB
- MICROSCOPY ROOM
- FABRICATION LAB
- CIRCUIT BUILD ROOM
- INSTRUMENT LAB
- PRINTING LAB
- DATA ANALYTICS SPACE

- The Discovery Lab is a **6,400 square foot space** equipped with state-of-the-art instruments and equipment designed for students to work collaboratively to plan and execute applied research activities.

COME SEE FOR YOURSELF



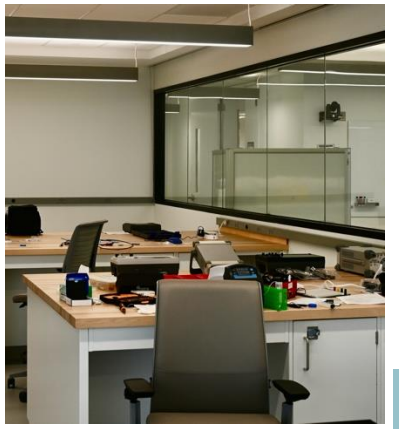
INSTRUMENTS & EQUIPMENT

Wet Lab & Dirty Lab

- Analytical balances, plate reader, UV-Vis, electrophoresis equipment
- Equipment for processing field specimens and samples

Fabrication Lab & Data Analytics Space

- Custom-built data analytic CPUs for database generation and machine learning



INSTRUMENTS & EQUIPMENT

Microscopy Space

- Inverted Microscope (Evident)
- IR/Raman Microscope
- Particle size analyzer
- Stereomicroscopes

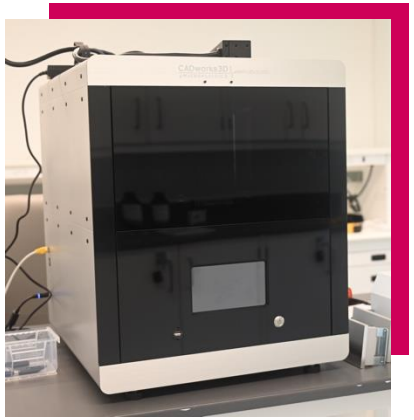
Instrument Lab

- HPLC (UV/Fluor)
- LC-MS (Sg Quad)
- Element analyzer
- GC-MS-FID
- MALDI TOF

INSTRUMENTS & EQUIPMENT

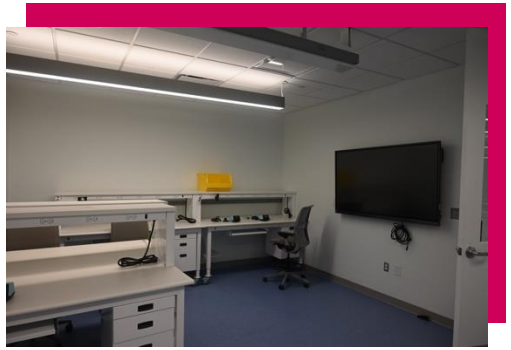
Printing Lab

- Microfluidics Printer
- 3D Printer
- CNC Mill



Circuit Build Room

- Circuit Board Printer (Conductive Inks)
- Soldering Stations

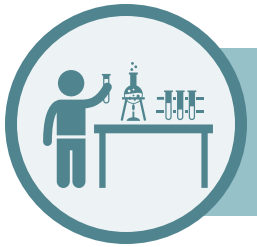


PROGRAMS

The Discovery Lab supports a wide array of programs

TRAINING WORKSHOPS

INDUSTRY / PARTNER-LED PROJECTS



CLASS LABS / ACTIVITIES

INDEPENDENT STUDENT PROJECTS

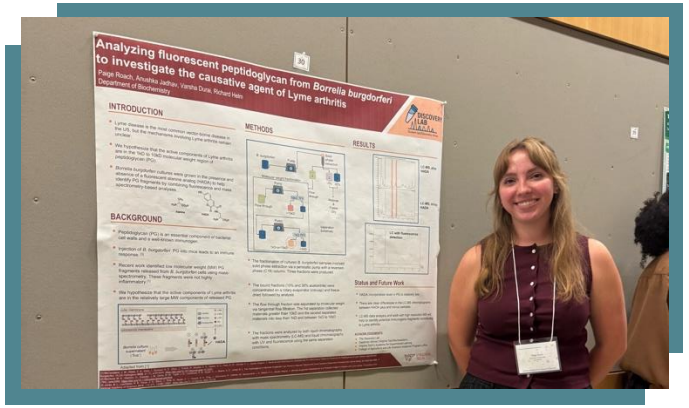
Undergraduate Research Experiences

FACULTY DIRECTED STUDENT PROJECTS

COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCES

BENEFITS TO THE UNIVERSITY

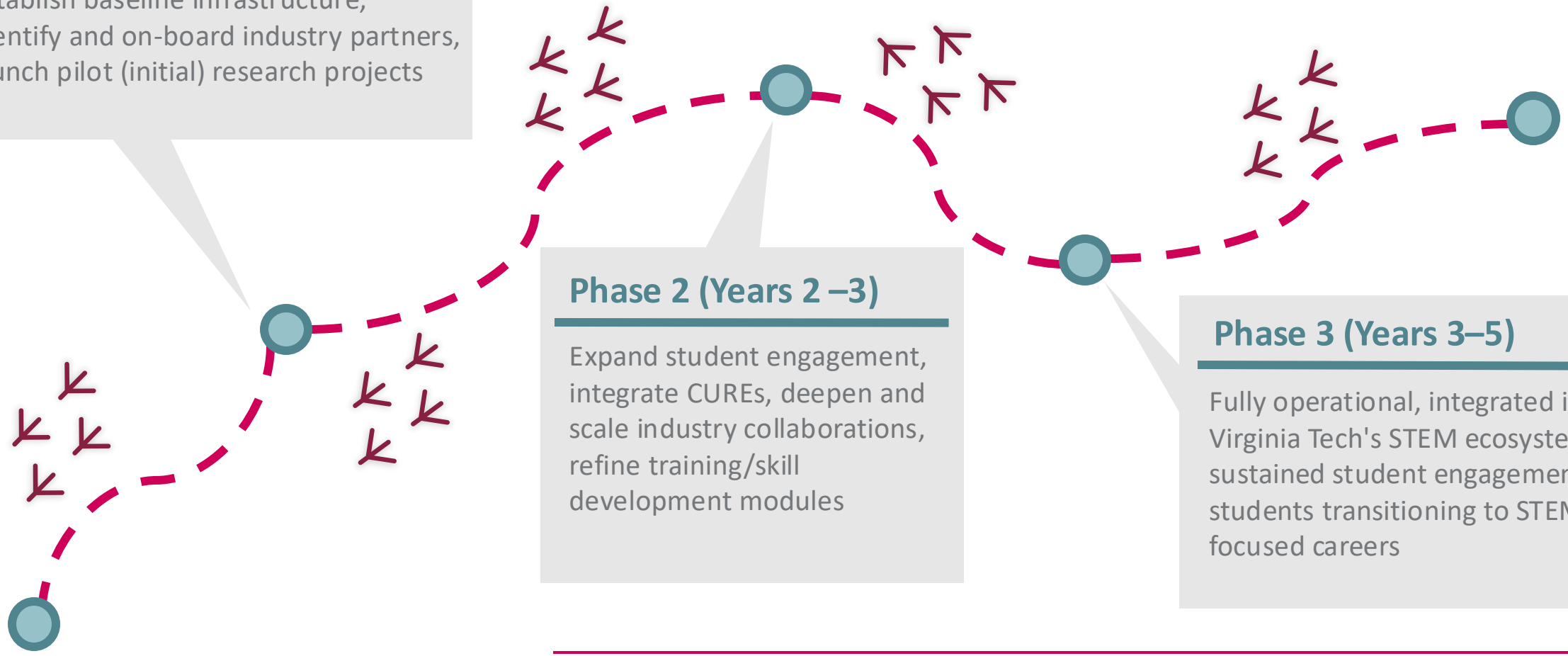
- PROMOTE CROSS-DISCIPLINARY COLLABORATION
- ACCELERATES STUDENT'S WORKFORCE-READY SKILLS
- SUPPORTS THE BRIDGE EXPERIENCE QEP
- FUELS INDUSTRY PARTNERSHIPS & TALENT PIPELINES
- ADVANCES VT'S NATIONAL PROFILE IN EXPERIENTIAL LEARNING



WHERE ARE WE GOING?

Phase I (Year 1-Pilot)

Establish baseline infrastructure, identify and on-board industry partners, launch pilot (initial) research projects



Phase 2 (Years 2 –3)

Expand student engagement, integrate CUREs, deepen and scale industry collaborations, refine training/skill development modules

Phase 3 (Years 3–5)

Fully operational, integrated into Virginia Tech's STEM ecosystem, sustained student engagement, and students transitioning to STEM-focused careers

HOW CAN YOU ENGAGE?

The Discovery Lab supports a wide array of programs

STUDENT ENGAGEMENT

- Promoting Discovery Lab programs and opportunities.
- Help us coordinate with peer ambassadors to promote the Lab to prospective students.

INDUSTRY ENGAGEMENT

- Leveraging industry contacts to help co-create partnerships
- Generate evidence on business cases to deepen industry engagement

FACULTY ENGAGEMENT

- Sharing how the Discovery Lab can help generate initial results / concepts for future projects.
- Hosting short-term workshops / training activities.
- Co-create additional undergraduate research experiences.
- Support student-led independent projects.

THANK YOU!

Contact Information

Anne M. Brown, Ph.D.
ambrown7@vt.edu