have questions?

Type them into questions box!

“Why am I muted?”
Don’t worry. Everyone is muted except the presenter and host.
Thank you and enjoy the show.

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  - **View the Collection**
  - Learn how to write better abstracts, deliver more engaging presentations, and network to your next dream job. Brush up on your soft skills and set a new career path by mastering what can not be taught in the lab.

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- **Drug Design and Delivery**
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  - The Drug Design Delivery Series has built a collection of the top minds in the field to explain the mechanics of drug discovery. Discover the latest research, receive an overview on different fields of study, and gain insight on how to possibly overcome your own mad scientist roadblocks.

- **Culinary Chemistry**
  - **View the Collection**
  - Why does food taste better when it is grilled or what molecular compounds make a great wine? Discover the delectable science of your favorite food and drinks and don’t forget to come back for a second helping.

- **Popular Chemistry**
  - **View the Collection**
  - Feeling burdened by all that molecular weight? Listen to experts expound on the amazing side of current hot science topics. Discover how chemistry of rockets, how viruses have affected human history, or the molecular breakdown of a hangover.

- **Business & Entrepreneurship**
  - **View the Collection**
  - How do ideas make it from the lab to the real world? Discover the ins and outs of the chemical industry whether you are looking to start a business or desire a priceless industry-wide perspective.

https://www.acs.org/content/acs/en/acs-webinars/videos.html

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From ACS Industry Member Programs

- **Industry Matters Newsletter**
  ACS Member-only weekly newsletter with exclusive interviews with industry leaders and insights to advance your career.
  Preview & Subscribe: [acs.org/indnews](acs.org/indnews)

- **LinkedIn**
  Connect, collaborate, and stay informed about the trends leading chemical innovation
ACS Career Navigator: 
Your Home for Career Services

Whether you are just starting your journey, transitioning jobs, or looking to brush up or learn new skills, the ACS Career Navigator has the resources to point you in the right direction.

We have a collection of career resources to support you during this global pandemic:

- ACS Leadership Development System
- Virtual Career Consultants
- ACS Webinars
- College to Career
- Virtual Classrooms
- Career Navigator LIVE!
- Professional Education
- ACS Career Navigator LIVE!
- ChemIDP
- College to Career
- ACS Webinars

Visit [www.ACS.org/COVID19-Network](http://www.ACS.org/COVID19-Network) to learn more!

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A Career Planning Tool For Chemical Scientists

ChemIDP is an Individual Development Plan designed specifically for graduate students and postdoctoral scholars in the chemical sciences. Through immersive, self-paced activities, users explore potential careers, determine specific skills needed for success, and develop plans to achieve professional goals. ChemIDP tracks user progress and input, providing tips and strategies to complete goals and guide career exploration.

https://chemidp.acs.org
**Think Like a CEO**

**What Can Business Acumen Do For You?**

- **Date:** Wednesday, April 21, 2021 @ 2-3pm ET
- **Speakers:** Patricia Simpson, Game Changing Etiquette and the University of Illinois at Urbana-Champaign
- **Moderator:** Matt Grandbois, DuPont Electronics & Industrial

**What You Will Learn:**
- Why business acumen is important for all employees
- What are the core elements of a business acumen
- How to develop or enhance your business acumen

**Co-produced with:** ACS Division of Professional Relations

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**The Hidden Impact**

**Taking a Life Cycle View**

- **Date:** Thursday, April 22, 2021 @ 2-3pm ET
- **Speakers:** Rich Helling, Dow
- **Moderator:** David Constable, American Chemical Society

**What You Will Learn:**
- Why life cycle thinking and assessment is a good way to include environmental dimensions in decisions
- How life cycle thinking and assessment identifies potential hot spots and trade-offs
- Why simple calculations can be insightful and are a great way to include life cycle thinking in daily decisions

**Co-produced with:** ACS Green Chemistry Institute and the ACS Committee on Community Activities for the Chemists Celebrate Earth Week campaign

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**Solving Plastics Problem Chemistry**

**Federal Research Technology Programs**

- **Date:** Wednesday, April 28, 2021 @ 2-3:30pm ET
- **Speakers:** Bruce Garrett, U.S. Department of Energy / Christina Payne, National Science Foundation / Kathryn Bever, National Institute of Standards and Technology
- **Moderator:** Angela Wilson, 2021 ACS President Elect

**What You Will Learn:**
- The Federal research funding priorities and opportunities related to the chemical formulation, recycling, and upcycling of plastics
- How these Federal agencies are working with industry to set new standards, move toward a circular economy, and improve life cycle analysis tools
- What are some possible future directions and plans under a new administration

**Co-produced with:** ACS Committee on Science

**Organized by:** Teresa Fryberger, National Academy of Sciences (retired) and Young Shin Jun, Washington University in St. Louis

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**Preparing Students**

**For Collaborative Work Beyond Graduation**

**FREE Webinar** | **TODAY at 2pm ET**

**THIS ACS WEBINAR WILL BEGIN SHORTLY...**
Preparing Students for Collaborative Work Beyond Graduation

Presentation slides are available now! The edited recording will be made available as soon as possible.

www.acs.org/acswebinars

This ACS Webinar is co-produced with ACS Education

Audience Survey Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT

What is the highest degree offered at your institution?

- Associate’s degree
- Bachelor’s degree
- Master’s degree
- Doctoral degree
- Not applicable

* If your answer differs greatly from the choices above tell us in the chat!
WHAT YOU WILL LEARN
• What collaborative work involves
• What collaborative and teamwork skills employers expect
• How these skills are acquired

Envision working COLLABORATIVELY
What are teamwork skills, exactly?

Cognitive Domain
Information and Communications Technology, Literacy, Critical Thinking, Analysis, Decision Making, Problem Solving, Reasoning/Argumentation, Adaptive Learning, Career Orientation

Interpersonal Domain
Nonverbal Communication, Active Listening, Oral and Written Communication, Empathy, Trust, Assertive Communication, Coordination, Collaboration, Conflict Resolution, Negotiation, Team Monitoring and Evaluation, Situational Leadership

Intrapersonal Domain
Self-Evaluation, Monitoring, Flexibility, adaptability, professional Ethics, Appreciation of Diversity, Productivity, Perseverance, Initiative, Personal/Social Responsibility, Intellectual Interest, Physical and Mental Health

What students are/should be learning in college


What are teamwork skills, exactly?

Cognitive Domain
- Information and Communication Technologies
- Critical Thinking
- Decision Making
- System Solving
- Reading
- Implementation, Career

Interpersonal Domain
- Nonverbal Communication
- Active Listening
- Oral and Written Communication
- Empathy
- Trust
- Assertive Communication
- Coordination
- Collaboration
- Conflict Resolution
- Negotiation
- Team Monitoring
- Situational Leadership

Intrapersonal Domain
- Self-Assessment
- Monitoring
- Flexibility
- Adaptability
- Professional Ethics
- Appreciation
- Productivity
- Perseverance
- Initiative
- Personal/Social Responsibility
- Intellectual Interest
- Physical and Mental Health


90% of chemical employers believe these teamwork skills are equally or more important than technical skills.

“I’m able to work well with others, (DEIR)
Undergraduate students acquire teamwork skills from completing labs with partners

- True
- False

*If your answer differs greatly from the choices above tell us in the chat!*

Groupwork

Teamwork

https://vibrance.wordpress.com/2007/05/22/dont-push-the-bus/

https://surgery.med.ufl.edu/
True or False: undergraduate students acquire teamwork skills from completing labs with partners.

<table>
<thead>
<tr>
<th>Group work</th>
<th>Teamwork</th>
</tr>
</thead>
<tbody>
<tr>
<td>- everybody possesses cognitive skills to solve task</td>
<td>- Different team members possess different cognitive skills, requiring interdependence</td>
</tr>
<tr>
<td>- efficiency permits tasks to be equally divided</td>
<td>- project is divided by expertise</td>
</tr>
<tr>
<td>- conflict typically arises from group members not pulling their weight</td>
<td>- conflict is good (if handled) because can lead to a better product.</td>
</tr>
<tr>
<td></td>
<td>- requires better communication skills from everyone</td>
</tr>
</tbody>
</table>

How we teach these teamwork skills at IUP

- We use Liberal Studies (General Education) courses to teach and have the students reflect on the interpersonal and intrapersonal skills that contribute to teamwork.

- We have the students **practice** and reflect on their teamwork skills by taking a “T-course” (a course within their major that is paired with another course, where related projects must be completed)
  - requires instructors to set up interdisciplinary Teamwork tasks
  - students complete a teamwork-based research project

- In a capstone course, students reflect about what they’ve learned.
“...better-designed opportunities should exist for the development of critical professional skills... to offer specific activities that would enhance students’ ability to:

- Communicate complex topics to both technical and nontechnical audiences...
- Collaborate on global teams...”

American Chemical Society (2012) “Advancing Graduate Education in the Chemical Sciences”

“Students would be encouraged to create their own project-based learning opportunities—ideally as a member of a team—as a means of developing transferable professional skills such as communication, collaboration, management, and entrepreneurship.


How do students acquire these “soft skills” in their professional growth?

Socialization: Process of developing a professional self, attitudes, values, and skills

1. Anticipatory
   Students will become aware of expected behaviors and attitudes in their classroom and research experiences.

2. Formal
   Students learn and adopt the “explicit” curriculum and expectations; shape identity and value based on things explicitly communicated to them.

3. Informal
   Students learn and adopt the “hidden” curriculum and expectations; shape identity and value based on things implicitly communicated to them.

4. Personal
   Students internalize new roles and integrate these with existing identity; shift from student to colleague and define own expectations.

Merton, 1957; Merton, Reader, and Kendall, 1957; Thornton and Nardi, 1975; Weidman, Twale, and Stein, 2001; Austin & McDaniel, 2006; Gardner, 2007
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Socialization: Process of developing a professional self, attitudes, values, and skills

Merton, 1957; Merton, Reader, and Kendall, 1957; Thornton and Nardi, 1975; Weidman, Twale, and Stein, 2001; Austin & McDaniel, 2006; Gardner, 2007

We tend to focus on our formal components of education...

But a growing evidence base suggests significant growth in soft skills occurs outside of these components.
In your experiences as an undergrad and grad student, how big of a role was teamwork in your primary research project?

- Truly collaborative project; teamwork was huge
- “Divide and Conquer:” everyone had their own piece
- Worked with others only when they or I needed help
- I worked mostly independently
- Not applicable

* If your answer differs greatly from the choices above tell us in the chat!

**RELATED RESOURCES:**

**Employment Information:**
How College Contributes to Workforce Success

**Training Materials:**
Entering Research Curriculum: https://wiscience.wisc.edu/program/entering-research

**Rubrics to Assess Collaborative and Professional Skills:**
Enhancing Learning by Improving Process Skills in STEM (ELIPSS):
https://elipss.com/index.html
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