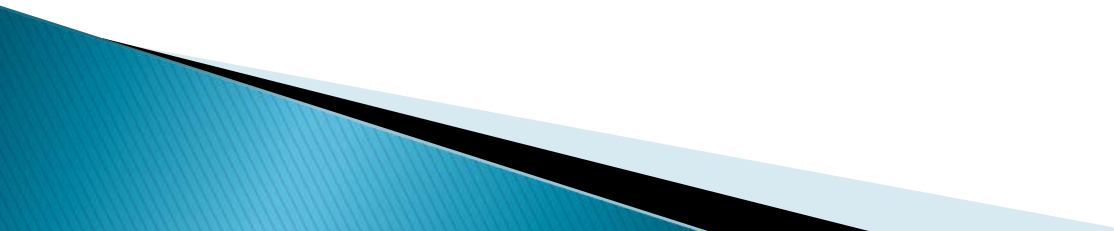


Developing as an Undergraduate Researcher

Dr. Gail P. Taylor



Please Recognize

- ▶ You must take your participation in the laboratory seriously
 - ▶ You should NOT see yourself as an observer, but rather a participant and lab member
 - ▶ Do NOT underestimate your potential contributions
 - ▶ You can contribute to
 - Your Lab's Project
 - Your Lab's future funding
 - The scientific literature
 - Society!!
- 

Research Student Development

- ▶ Make sure that you enter a lab with projects that interest you!
- ▶ Faculty know that you initially know little and will help you grow
- ▶ Faculty know that it will take their time and effort to guide the growth
- ▶ You take the researcher's identity – you become “their” student
- ▶ Faculty will support “their” students now and in the future with strong letters, recommendations, and advice
- ▶ Faculty –will– have expectations for your development/performance

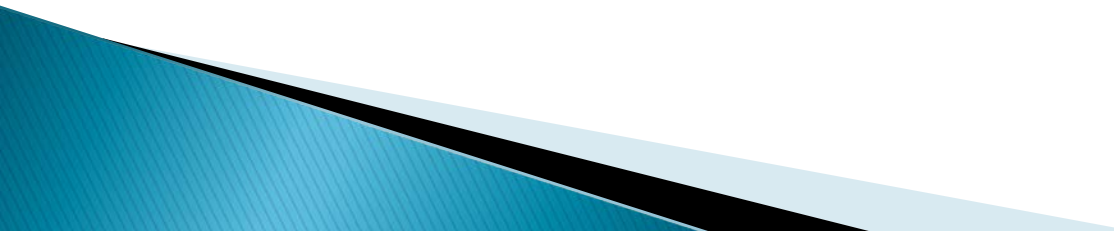
The Highly Successful Undergraduate Research Student

▶ Has Solid Personal Characteristics

- Excited about research
- Takes ownership of project
- Independently pursues information
- Responsible
- Honest
- Hard working
- Academically solid
- Persistent
- Committed
- Teachable
- Team player - Contributes to lab beyond own project
- Reacts positively to failure
- Gets along well with others
- Develops maturity

The Highly Successful Undergraduate Research Student

▶ Develops “Research Skills”

- Learns how to formulate questions/hypotheses
 - Learns how to design experiments
 - Learns new methods as needed for project
 - Learns how to learn new methods
 - Learns how to analyze their results
 - Learns how to put results into writing (abstracts, papers, thesis)
 - Learns how to present their work
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The Highly Successful Undergraduate Research Student

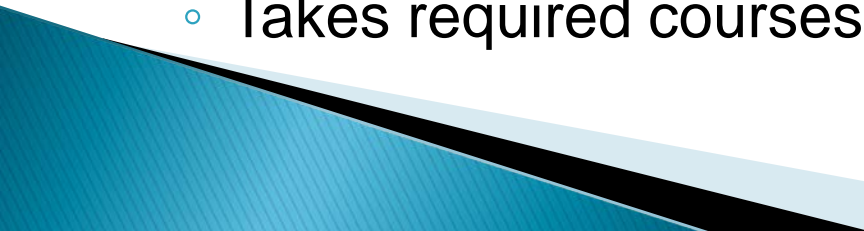
- ▶ Learns to Think Like a Scientist
 - Has strong command of project literature (context)
 - Takes time to ponder results/implications
 - Generates thoughtful ideas
 - Associates project with other fields
 - Develops critical thinking skills
 - Knows how to approach and solve problems
 - Actively and skillfully engaged in conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication (Scriven and Paul, 1987)
 - Identifies the next logical experiment

The Highly Successful Undergraduate Research Student

▶ Develops Professional Skills

- Can clearly and concisely explain their research
- Can present their work as posters/orals
- Can represent the lab at conferences
- Can behave as a young professional
- Develops a network

▶ Learns about Research as a Career

- Ethical Behavior
 - Laboratory Safety
 - Learn lab culture
 - Learns about career path
 - Learns about Graduate School
 - Takes required courses for next stage
- 

Some Benefits to UG Research

- **Academic:**
 - Validates coursework
 - Intro to balancing school and research
 - Deeper Faculty contact/mentoring
- **Personal:**
 - Self-confidence
 - Maturity
 - Knowledge that you can have an impact
 - Generally, an increase in motivation
- **Professional**
 - Observe a “high level” career
 - Learn to speak like a professional
 - CV/Resume that stands out
 - Letters of recommendation
 - Publications

• **Doors open into Grad School or Jobs**

A Caveat – Please Recognize...

- ▶ You must have true interest/commitment
 - ▶ You really can't fake performance
 - ▶ You must truly care about being in the laboratory and be genuinely interested in their projects
 - ▶ A Researcher can tell when a student
 - really is engaged
 - is showing up
 - is contributing
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