

How to find a lab and to carry out effective research

- **Benefit**
- **Steps**
- **Resources**
- **Tips and traps**

Why do I need to do research?

- Complement course instruction with “**real life**” experience
 - Exciting and motivating
 - Apply what you learn
 - Acquire new knowledge and techniques
- Help fulfill degree requirements (through Chem199, Chem292, or similar courses)
- Contribute to scientific discovery
- Launch future career
 - Find truly interesting research areas
 - Need experience and letters for fellow-/scholarship, graduate/medical school, and other future employment

What should I do if I am interested?

- **Search for appropriate research groups that match your interests**
- **(optional) prepare your resume**
- **Contact the professors**
- **Interview (e-mail, phone, or in-person)**
- **Send thank-you letter and express further interests**
- **Wait, decide and accept**

Where Do I find the research group?

- **Web site**
- **Departmental office (brochure and advisor)**
- **Personal contact**

Course instructors

Teaching assistants

Students who work in the research lab you are interested in

What type of research group that fits you?

- **Benefits of a small-size group**

Personal attention from professors and group members

May work with professor side by side and learn directly from the professor

- **Benefits of a large-size group**

Lots of choices of projects

Lots of interactions with many members who have different interests

Learn to work in a team collaboratively

How to contact the professor?

Dear Professor XX,

My **name** is yy. I am a **sophomore** **majoring in zz** and I am looking for research opportunities for **next year**. Your area of research seems very **interesting** and I would like to gain undergraduate research experience by helping out. Please let me know if you have anything available. Thank you very much.

Sincerely,

yy

How to contact the professor?

Dear Professor XX,

My name is yy. I am a sophomore majoring in zz. I have talked to so-and-so about your research and I have read about your research, specifically concerning "blah, blah and blah " and was very interested in your research. I was wondering if there is any position open for an undergraduate student to volunteer for credit in your lab next semester Fall 2003.

Is there any time I could come in and speak to you?

Thank you very much for your time,

Sincerely,

yy

How to contact the professor?

Dear Professor XX,

My name is yy. I am a sophomore majoring in zz. I'm the student who talked to you in the hall after your class this afternoon about the possibility of doing research. I have **taken** chem 107-8-9-10, math 120-130-242-285 and physics 111-112 as well as AP biology (and various humanities etc.). Just so you know a little more about me, my interest in chemistry has grown very much over the past year here. I have always known I wanted to do something in the sciences, but until I started taking college level courses I did not realize it was chemistry (I took the accelerated sequence because i wasn't sure what i wanted to do).

How to contact the professor?

Particularly I am interested in inorganic chemistry. The application of inorganic principles to biological molecules seems like particularly interesting and useful application, and I'd like to learn more about it, if not make it the focus of my studies sometime in the future.

In terms of setting up a meeting I am free the following times:

Monday: xxx

Wednesday: xxx

Thanks,

yy

What questions to ask during the interview?

- **Research goals**
- **Research projects**
- **Research projects available**
- **Number of people in the lab (esp. undergrad)**
- **Professor's expectation**
- **(2nd interview) names of student(s) to talk to**

The easy/difficult part: acceptance/decline

- **Always respond to the offer ASAP**
- **If you cannot decide right away, tell the professor about your schedule. Ask for deadline for consideration and for permission to extend the deadline, if the deadline is too short**
- **To accept, show enthusiasm**
- **To decline, give reason(s)**

How to carry out effective research?

- **Start as early as possible**

End of Freshmen or Sophomore year is preferred

Question: Are you ready to commit time and effort?

(GPA is still the number 1 priority)

May need to adjust schedule later

How to carry out effective research?

- **Maintain proper expectation**

commitment

understanding

contribution

How to carry out effective research?

- **Time management**

The key to success

One six-hr. time slot >> three two-hr. time slot

Multi-tasking

How to carry out effective research?

- **Group meeting participation**

Very important

Whole group meeting

Sub-group meeting

Literature club meeting

How to carry out effective research?

- **Working relationship with others in the lab**

Important both for personal satisfaction and for project success

Respect vs. principle

Respect can be best gained through your work and behavior, not through words

Learn to deal with difficult people

Good luck!