

# Summer Internships (*Why? How?*)

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(Slides used for an SPS-sponsored evening event)

# Plan for this evening

- 1) A summary of some summer-research/internship prospects
- 2) Some targeted advice on how to find jobs/internships

*Discussion throughout. Please ask questions or make comments & suggestions*

# What's your long-term plan?

I want to do research or development  
in the long term  
(anywhere -- in company,  
university, national lab, etc)



A PhD may be for you.  
(1/3 – 1/2 of students)

- 5-6 years
- Students are paid, don't pay tuition,
- Classes for 1-2y, then research full-time

I want to do something other  
than research



A job after graduation may be  
for you.  
(1/2 – 2/3 of students)  
Or possibly MS, MBA, MD or  
other degree.

I don't know what I want  
to do in the long term.



Find out: ask around, join  
a research group.  
Summer research. Talk to  
alumni.

**For many paths, summer research at university or company is great experience**

# Where you could work (1): National Labs and other Federal Govt. Labs— a great resource

Institution Name	URL	Comments
<b>Argonne National Lab</b>	<a href="https://www.anl.gov/careers/apply-job/students">https://www.anl.gov/careers/apply-job/students</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome.
<b>Brookhaven National Lab</b>	<a href="https://www.bnl.gov/education/program.asp?q=116">https://www.bnl.gov/education/program.asp?q=116</a>	Long Island, NY. One of many large national labs, with vibrant and diverse research. Physicists welcome.
<b>Dept of Energy (DOE) MLEF (Mickey Leland Fellowships)</b>	<a href="https://orise.orau.gov/mlef/default.html">https://orise.orau.gov/mlef/default.html</a>	
<b>DOE Scholars</b>	Visit <a href="https://orise.orau.gov/doescholars">https://orise.orau.gov/doescholars</a>	Deadline is 12/17/2018
<b>Fermi Lab (Fermi National Accelerator Laboratory)</b>	<a href="http://ed.fnal.gov/interns/">http://ed.fnal.gov/interns/</a>	Particle physics. Located outside Chicago.
<b>Lawrence Berkeley National Lab</b>	<a href="http://education.lbl.gov/Programs/Internships.html">http://education.lbl.gov/Programs/Internships.html</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome.
<b>Lawrence Livermore National Lab</b>	<a href="http://students.llnl.gov/">http://students.llnl.gov/</a> and <a href="http://computation.llnl.gov/careers/internships">http://computation.llnl.gov/careers/internships</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome.
<b>Los Alamos National Lab</b>	<a href="http://www.lanl.gov/">http://www.lanl.gov/</a> and <a href="http://www.lanl.gov/careers/career-options/student-internships/">http://www.lanl.gov/careers/career-options/student-internships/</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome.
<b>MIT Lincoln Lab</b>	<a href="http://www.ll.mit.edu/">http://www.ll.mit.edu/</a> and separate pages for summer programs	A few UMass alumnae/i have gone there. At least one is still there: Robert Lychev (robert.lychev@mit.edu)
<b>Naval Research Laboratory</b>	<a href="https://www.nrl.navy.mil/careers/students/">https://www.nrl.navy.mil/careers/students/</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome. Prof. Dinsmore used to work there.
<b>National Institutes of Health (NIH)</b>	<a href="https://www.training.nih.gov/programs/sip">https://www.training.nih.gov/programs/sip</a>	Deadline Feb-March. Prof. Ross has contacts who have hired UMass alums.
<b>National Institute of Standards &amp; Technology (NIST) Summer Undergrad Research Fellowship (SURF)</b>	<a href="https://www.nist.gov/surf">https://www.nist.gov/surf</a>	Gaithersberg MD or Boulder CO. Deadline in February. The contact for UMass Amherst is Lin Tang ( <a href="mailto:lintang@acad.umass.edu">lintang@acad.umass.edu</a> ) in the Learning Resource Center,
<b>Oak Ridge National Lab</b>	<a href="https://www.ornl.gov/">https://www.ornl.gov/</a> For Oak Ridge and other DOE labs: Science Undergraduate Laboratory Internships (SULI) <a href="https://science.energy.gov/wdts/suli/">https://science.energy.gov/wdts/suli/</a> A second program, ORISE, for BS,MS and PhD students: <a href="http://www.orau.org/dodprograms">www.orau.org/dodprograms</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome. Contact Mike Janney, Sr. Recruiter for Oak Ridge Associated Universities (ORAU). <a href="mailto:michael.janney@orau.org">michael.janney@orau.org</a>
<b>Pacific Northwest National Lab</b>	<a href="https://jobs.pnnl.gov/">https://jobs.pnnl.gov/</a>	One of many large national labs, with vibrant and diverse research. Physicists welcome. Contact: John Lareau, UMass alum ( <a href="mailto:john.lareau@pnnl.gov">john.lareau@pnnl.gov</a> )
<b>Sandia National Lab</b>	<a href="http://www.sandia.gov/">http://www.sandia.gov/</a> and <a href="http://www.sandia.gov/careers/students_postdocs/internships/">http://www.sandia.gov/careers/students_postdocs/internships/</a>	One of many very large national labs, with vibrant and diverse research. Physicists welcome.
<b>US Air Force Pathways Internship Program</b>	Go to USAjobs.gov and search for “pathways science.”	For students at all levels. Possibility of transition to job after graduation.
<b>US Air Force Research Lab</b>	<a href="http://www.wpafb.af.mil/afrl">http://www.wpafb.af.mil/afrl</a>	At Wright-Patterson base in Ohio.
<b>US Army Natick Soldier Research, Development and Engineering Center (Natick, MA)</b>	<a href="http://www.nsrdec.army.mil/#/workwithus">http://www.nsrdec.army.mil/#/workwithus</a>	Prof. Dinsmore has a contact there.
<b>US Army Pathways Internship Program</b>	Go to USAjobs.gov and search for “pathways science.”	For students at all levels. Possibility of transition to job after graduation.
<b>US Army Research Lab</b>	<a href="https://www.arl.army.mil/">https://www.arl.army.mil/</a> Look for “careers” page. Also: <a href="https://www.orau.org/arl/fellowship/applicants/">https://www.orau.org/arl/fellowship/applicants/</a>	Several locations with a wide range of research projects. Contact: Mike Janney ORISE Sr. Recruiter: <a href="mailto:michael.janney@orau.org">michael.janney@orau.org</a>
<b>US Navy Pathways Internship program</b>	Go to USAjobs.gov and search for “pathways science.”	For students at all levels. Possibility of transition to job after graduation.

# Where you could work (2): Some companies with whom we have contacts

...but remember that students find new ones too! Look online, ask around...

Company Name	URL	Comments
<b>Cabot Corporation</b>	<a href="http://www.cabotcorp.com/company/careers/internships-and-co-ops">http://www.cabotcorp.com/company/careers/internships-and-co-ops</a>	Billerica, MA. A large specialty chemical company, also hires physicists. Prof. Dinsmore has a contact there.
<b>Eze Software Group</b>	<a href="https://www.ezesoft.com/careers/launch-your-career">https://www.ezesoft.com/careers/launch-your-career</a>	Boston, MA. David Balaban (BS 2016) worked there.
<b>CT Center for Advanced Technology, East Hartford</b>	<a href="https://www.ccat.us/">https://www.ccat.us/</a>	Provides industry with advanced manufacturing and modeling technology. Dr. Thomas Maloney (tmaloney@ccat.us), a colleague of UMass alum John Lareau.
<b>Formlabs</b>	<a href="https://formlabs.com/">https://formlabs.com/</a>	Might not explicitly announce internships, but if you're interested you should contact them anyway. They are hiring. Formlabs visited UMass Physics on Oct 3, 2017: Max Zieringer, Brendan Pratt, and Dana Djerf (dana@formlabs.com). Contact Dana (UMass '14) about internships & jobs.
<b>GCP Applied Technologies</b>	<a href="https://gcpat.com/en-us">https://gcpat.com/en-us</a>	Cambridge, MA. Prof. Dinsmore has a contact there.
<b>Hewlett Packard</b>		On Nov 13-14, 2017, there was an Information Session for positions at Hewlett Packard for Physics majors. Keep an eye out for this in 2018.
<b>Mass Mutual Financial Group</b>	<a href="https://www.massmutual.com/about-us/careers">https://www.massmutual.com/about-us/careers</a>	Data science. They have a location in Amherst (Kendrick Place). They have hired at least two UMass alums, a BS + a PhD.
<b>Modern Electron</b>	<a href="https://modernelectron.com/">https://modernelectron.com/</a> 14360 SE Eastgate Way, Bellevue, WA 98007	Hires graduate-student interns. Modern Electron is a Seattle-based startup dedicated to developing breakthrough energy technologies, developing highly efficient, compact, and scalable solid-state thermionic generators, with the ultimate goal of making electricity cheaper and far more universally available for everyone. Contact: Shawn Swanson, Technical Recruiter. (425)209-0063. shawn.swanson@modernelectron.com
<b>Qnect</b>	<a href="http://www.qnect.com/">http://www.qnect.com/</a>	Hadley, MA. UMass alum Chris Bilbo (BS 2016) worked there for a summer. Qnect is a software company. Chris worked on a Tekla plugin to optimize steel structure building designs.
<b>Raytheon</b>	<a href="http://www.raytheon.com/">http://www.raytheon.com/</a>	HQ in Waltham, MA. At least one UMass Physics alum works there. They have a jobs listing site, which includes 'college jobs' (=internships). There are many that are explicitly physics and you could apply for others too.
<b>Rigetti Computing</b>	<a href="http://rigetti.com/">http://rigetti.com/</a> Jobs and internship application deadline 10/31	A Quantum computing company based in CA. UMass alumna Genya Crossman (BS 2017) works there and recruits for them.
<b>Saint-Gobain</b>	<a href="http://www.saint-gobain-northamerica.com/">http://www.saint-gobain-northamerica.com/</a>	MA locations. They have an internship program.
<b>Schlumberger-Doll</b>	<a href="http://careers.slb.com/en/recentgraduates/engineering/internships.aspx">http://careers.slb.com/en/recentgraduates/engineering/internships.aspx</a>	Cambridge, MA. A large oilfield services company.
<b>Solvay</b>	Solvay R&I Center 350 George Patterson Boulevard Bristol, PA 19007	For PhD-holders. Jaime Hutchison (PhD 2013) works there. Solvay is a great company to work for, and the COMPASS group in particular is a really nice transition into industry as it is still quite close to academia (we collaborate with UPenn and the CNRS), but also allows for interaction with the Solvay business units.
<b>Takeda Pharmaceuticals</b>	<a href="http://www.takedajobs.com">www.takedajobs.com</a>	A number of summer internships available for students in all science majors. Review internship positions and apply at: Takeda jobs. The deadline for applications is December 18, 2017. They did not visit campus.
<b>Unilever</b>	<a href="http://unilever-college.jobs/">http://unilever-college.jobs/</a> or <a href="https://www.unilever.com/careers/students-and-graduates/opportunities-for-students.html">https://www.unilever.com/careers/students-and-graduates/opportunities-for-students.html</a>	Trumbull, CT. They like to hire their interns. Prof Dinsmore has a contact there.
<b>Xerox</b>	<a href="https://www.xerox.com/en-us/jobs/internship">https://www.xerox.com/en-us/jobs/internship</a>	Webster, NY and other locations. Prof. Dinsmore has connections there. They will consider graduate student internships as well as undergrad.

## Where you could work (3): REU programs (“Research Experience for Undergraduates”)

- A long list is here: [https://www.nsf.gov/crssprgm/reu/reu\\_search.jsp](https://www.nsf.gov/crssprgm/reu/reu_search.jsp)
  - Many topics, many locations around the US.
- Many are funded by National Science Foundation (NSF).
- UMass has one called “LEE-SIP” (<https://www.cns.umass.edu/students/undergraduate-research/lee-science-impact-program>)
- Often 10 weeks, includes some basic training, working full time in a lab. Pay is about \$5,000 total and some include housing.
- Applications usually due in February
- Need a resume, an essay, and at least one recommendation letter.
  - Plan now
  - Ask for rec letter at least 1 month in advance
  - Ask for a meeting (face-to-face) with your letter-writer(s)
  - Give letter-writer(s) copy of your resume and other application materials
  - Don’t be shy about giving them ‘talking points’ – things you want conveyed.
- You should apply to several programs

## Where you could work (4): joining a research group at UMass

- Research usually done **during the semester** (academic credit)
  - If you're interested and can fit in the extra credits, go for it.
  - Arrange during the previous semester, midway through or near the end.
- Sometimes done during the summer (\$/hr): Informal applications between Dec. & Feb.
  
- **How: Reach out to faculty**
  - Emails, knocking on door; talking after class; SPS.
  - Ask to talk about science; don't ask for a position right away.
- **Expertise is often not needed.** Do not question your suitability.
- **You do not need your own research idea.** (That is very unrealistic.)
- Most often done **as independent study for academic credit.**

# Finding new opportunities:

“Physicists in Industry” visitor series:

Visitors from JEOL USA, MIT/Lincoln Lab, Boston Childrens’ Hospital, Formlabs, Rigetti Computing, Medrobotics, Pacific Northwest Labs, Newgrange Designs, Physical Sciences Inc., Cantor Colburn LLP (attorneys), SRC, Inc., ExxonMobil...

Career Fairs – keep an eye out.

LinkedIn

Handshake, AIP/APS, and other databases....see below.



## Some targeted advice on how to find jobs/internships

- Starting now, through Jan.
  - Spend time searching for opportunities. Plan to apply to all of them in a batch.
    - Don't wait for feedback on some before going further.
    - Don't go by "first tier" then "second tier."
- Starting now, through Jan.
  - Write a resumé and give yourself time to polish it.
    - Bring it to CNS Career advising or OURS for advice (see next page). Show it to anyone who could read it – advisor, instructor, peer....
- Starting now, through Jan.
  - Write a draft cover letter and give yourself time to polish it.
    - Write variations for different jobs. Adjust your goals to match.
- Dec.-Feb.
  - Send in the applications
- Jan.-Feb.
  - After you apply, **find individual people to contact and reach out to them.**
    - Faculty contacts, friends, alumni, CNS Career office, web contacts
    - Send email. If no reply, send a follow-up 2 weeks later.

# Some advice on internships & jobs from CNS Career Advising (Janet Bordwin & Erin Cherewatti)

Career help is available at the CNS Career Center webpage: [www.cns.umass.edu/careers](http://www.cns.umass.edu/careers) . There, students can:

- Learn how to use [Handshake](#), our new campus-wide database of jobs, internships, co-ops and some research opportunities. New positions being added daily. Students make an appointment to see a professional Career Advisor in Handshake.
- Use the [CNS Career Handbook](#), for career resources: resume, cover letter, LinkedIn, how to find research, how to network and search for opportunities and much more. There are major specific job search boards there as well.
- They have **walk-in hours** from 10-5 with Career Peer Advisors every day, in Morrill III, Room 215. These are great for resume and cover letter help and review.
- [Big Interview](#), an excellent on-line tool to help students learn how to interview and practice these skills.
- There is a [Database of Completed CNS Internships](#).

Students should read the **weekly CNS Career Center emails**. These highlight any career workshops (Resume, Networking, etc.) and events pertinent to CNS students.

In the past, Janet has taught the **CNS Career Course** in the spring, NATSCI293A