Charlotte is one of the few universities to offer graduate degrees in Optical Science and Engineering

M.S. & Ph.D.
Optical Science and Engineering

• Interdisciplinary and inter-departmental program
• Students work with faculty from Physics, ECE, ME, Chemistry
• Proper ‘home’ association is the Optics Center (Glenn Boreman, Dir.)

Program Director: Angela Davies, 235 Grigg, 7-8135, adavies@uncc.edu
Program Assistant: Mark Clayton, Program Assistant, 7-8117, clayton@uncc.edu
OSE administrative support is through the Department of Physics and Optical Science

This means help with things like

- Completing forms for the graduate school
- Completing an OSE form (e.g. Plan of Study)
- Having holds lifted for adding classes
- TA contracts through the OSE program
- Qualifying exam information
- Setting dates and room reservations for Topic Approval and Dissertation Presentations.
  
First Contact Person:
Wendy Ramirez, 7-8132
wramire1@uncc.edu

Program Director:
Angela Davies, 7-8135
adavies@uncc.edu

Students go to their advisor’s home department for research-related administration

Examples include

- RA contracts
- Purchasing items through grants
- Travel authorization
- Travel reimbursement
  
Who do You Contact?
Ask your faculty advisor (varies with Department)

Example: Physics and Optical Science
Contact
Wendy Ramirez, 7-8132
wramire1@uncc.edu
Optics research at Charlotte is interdisciplinary and spans the range from Science to Engineering

Science
- Theoretical Optics
- Life Sciences
- Optical Materials
- Novel Light/matter Interactions
- Imaging

Engineering
- Biomedical Optics
- Optics Fabrication
- Precision Instrumentation
- Optical Sensors and Measurements
- Optoelectronic Materials
- Optoelectronic Devices
- Micro-optics and Integrated photonics

OSE Research Opportunities are Diverse:
http://optics.uncc.edu/directory
The optics program at Charlotte prepares you for a career in research and development.

Graduates are prepared for work in:
- Industry
- National Labs
- Academics

### Degree Requirements

<table>
<thead>
<tr>
<th></th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MS Thesis Credits</strong></td>
<td>32</td>
</tr>
<tr>
<td>5 Core Courses</td>
<td></td>
</tr>
<tr>
<td>Seminar (2 credits)</td>
<td>2</td>
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<tr>
<td>Electives</td>
<td>9</td>
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<tr>
<td><strong>MS non-Thesis Credits</strong></td>
<td>32</td>
</tr>
<tr>
<td>Same as Above</td>
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<tr>
<td>9 Course Credits</td>
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<table>
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<tr>
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<tbody>
<tr>
<td><strong>PhD Credits</strong></td>
<td>72</td>
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<tr>
<td>5 Core Courses</td>
<td></td>
</tr>
<tr>
<td>Seminar ≥ 3 credits</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>~18 Open Credits</td>
<td></td>
</tr>
<tr>
<td>Research Credit</td>
<td>24</td>
</tr>
</tbody>
</table>
Ph.D. degree candidate must

- Present evidence of competency in the Core Curriculum (max 3 Bs and/or passing the qualifying exam)
- Complete 2 semesters of Seminar (OPTI 8110) during the first 2 semesters and complete 1 semester of Seminar (OPTI 8110) during each academic year of residency in the program (present in Graduate Colloquium)
- Complete a minimum of 9 credit hours in formal courses having an OPTI prefix in addition to the Core Curriculum
- Complete a minimum of 24 credit hours of dissertation research (OPTI8991)
- Present a Plan of Study detailing all course and examination requirements
- Successfully complete the written and oral qualifying exam
- Present a Ph.D. Research Plan
- Successfully defend the Ph.D. dissertation.

Degree Requirements: Ph.D.

Degree Requirements: Credits

M.S. (32 credits)

<table>
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<tr>
<th>Course Type</th>
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</thead>
<tbody>
<tr>
<td>Core Courses</td>
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<tr>
<td>Open Electives</td>
<td>6</td>
</tr>
<tr>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>Research Credit</td>
<td>9</td>
</tr>
<tr>
<td>(or classes for non-thesis)</td>
<td></td>
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Ph.D. (72 credits)

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<tr>
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<td>OPTI Electives</td>
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<td>~5</td>
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<tr>
<td>Open credits:</td>
<td>~19</td>
</tr>
<tr>
<td>classes/research/seminar</td>
<td></td>
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|
Degree Requirements: Courses

Core Courses
- OPTI 6/8101 Mathematical Methods of Optical Science and Engineering (Fall)
- OPTI 6/8102 Principles of Geometrical and Physical Optics (Fall)
- OPTI 6/8104 Electromagnetic Waves (Spring)
- OPTI 6/8105 Optical Properties of Materials (Fall)
- OPTI 6/8211 Introduction to Modern Optics (Spring)

Elective Courses
- Many elective courses are ‘cross-listed’ with courses in other programs (e.g. PhD ME, MS EE, …)
- Courses will be offered with a OPTI XXXX number and the cross-listed course (MEGR XXXX) number. Enroll in the OPTI XXXX version
- PhD students should enroll in the 8xxx number for a course if possible.

Course and Dissertation Credit Timeline to the PhD

On GASP?
Need 9 Credits Fall and Spring Minimum
Milestone Timeline to the PhD

You Are Here
- Pick Advisor
- Transfer Credits?
- Pass Qualifier
- Complete Plan of Study
- Admission to Candidacy Form
- Walk Through Graduation
- Apply Online to Graduate (GSF)
- Defend Dissertation (GSF)

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TA → RA
Choose Committee
[2 more people, (GSF)]
Topic Approval
(GSF)

GSF = Graduate School Form Required
OSEF = OSE Program Form Only

OPTI 8110 Seminar Timeline to the PhD

You Are Here
- OPTI 8110 Scheduled
- Opt 8110 Required
- OPTI 8110 Required
- OPTI 8110 Required
- Walk Through Graduation

F S U F S U F S U F S U F S

OPTI 8110 Present at Grad. Coll.
(Opt) Attend Grad. Coll.
(Opt) Attend Grad. Coll.
(Opt) Attend Grad. Coll.
(Opt) Attend Grad. Coll.
Defend Dissertation (GSF)
OPTI 8110 Seminar Syllabus: Two Options

Option A (Only attendance is required)  Optional

Attend the OSE Grad Colloquium, Thursdays 12:30-1:30.
There will be 12 total colloquia.
- 10 attendances = A
- 8 attendances = B
- 6 attendances = C

Option B (Attendance plus a talk is required)

Give a technical presentation (required for a grade of A, B or C)
(You will receive a ‘U’ in the class if you do not give a presentation)

And attend the OSE Grad Colloquium
(at times other than when you present)
- 6 attendances (not counting when you present) = A
- 4 attendances (not counting when you present) = B
- 2 attendances (not counting when you present) = C

Earn an MS Non-Thesis on the Way to the PhD
Steps to applying to the MS OSE program:

Apply On-line to MS OSE Program
1. Apply to the MS OSE program through the Grad School ‘Apply Now’ site  
   http://graduateschool.uncc.edu/admissions/apply-now.html
2. Put down Angela Davies, Wendy Ramirez, and Liz Butler as your references. (Email Wendy for contact info: wramire1@uncc.edu)
3. Submit a Statement of Purpose that says the following:  
   “I want to receive my MS degree as I work toward my PhD.”
4. Once your application is submitted, let Wendy know (email).
5. Wendy will have the Graduate School transfer your test scores and transcripts from your PhD application.

Extra Things to Consider

- GASP: In and Out of State Tuition support + Health Insurance  
  - Must be enrolled in 9 credits min.  
  - Must hold an assistantship  
  - PhD students  
  - Maximum 10 semesters (6 semesters if you come with an MS)  
- If you are a US citizen, failure to become a NC resident may lead to withdrawal of GASP out-of-state support  
  (www.resdetermination.uncc.edu)  
- PhD students enroll in 8xxx classes when possible (MS 6xxx)  
- Check for cross-listing (enroll in the OPTI version when possible)  
- TA Support: Not guaranteed after first year  
  - First year students have priority, then 2nd year students, etc…  
  - Expect to transition to a funded project at the end of year 1.  
- Go to grad colloquium to learn about research areas (Thurs 12:30)  
- Note location of electronic information (GS, audit form, handbook)  
- Graduate catalog is always right (http://catalog.uncc.edu/graduate-catalogs)
OSE at Charlotte
Angela Davies  adavies@uncc.edu

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