DOCTORAL DEGREE REQUIREMENTS

General policies for all University of Oklahoma doctoral programs are available in the Graduate College Bulletin.

DOCTOR of PHILOSOPHY

MAJOR: Chemistry and Biochemistry
CONCENTRATION: Chemistry
DISCIPLINARY EMPHASIS: Physical Chemistry

Program effective Fall 2015

Graduate courses that are a part of Programs of Study in the Department of Chemistry and Biochemistry are denoted as CHEM G5XYZ, where X is the program of study, Y is the sequence of number within that Program of Study (for Y= 0-9), and Z is the number of credit hours as follows:

<table>
<thead>
<tr>
<th>X</th>
<th>Departmental Requirements</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Departmental Requirements</td>
<td>5 Physical</td>
<td>Z</td>
</tr>
<tr>
<td>1</td>
<td>Analytical</td>
<td>6 Chemical Education</td>
<td>3-5 Advanced Instruction (modules)</td>
</tr>
<tr>
<td>2</td>
<td>Biochemistry</td>
<td>7 Structural Biology</td>
<td>6-7 Special Topics or Electives</td>
</tr>
<tr>
<td>3</td>
<td>Inorganic</td>
<td>8 Unused</td>
<td>8 Practicum</td>
</tr>
<tr>
<td>4</td>
<td>Organic</td>
<td>9 Interdisciplinary or custom</td>
<td>9 Seminar</td>
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COURSEWORK REQUIREMENTS

Department Courses and Seminar Requirements

Continuous enrollment in CHEM 5090 Departmental Colloquium is required (0 credit hours).

- CHEM 5011 Fundamentals I .......................................................... 1 hour
- CHEM 5021 Fundamentals II ......................................................... 1 hour
- CHEM 5080 Laboratory Rotations .................................................. 2 hours
- CHEM 5591 Seminar in Physical Chemistry .................................... 1-12 hours

Continuous enrollment in 5591 is required after the first semester, up to 12 credits.

Total ........................................................................................................ 5-16 hours

Focus Area/Breadth Course Requirements ........................................................................... 16+ hours

Minimum of 16 credit hours in letter-graded courses in the CHEM course inventory at the G5XYZ level (X≠0, Y=0-8) including:

Focus Area Course Requirements—Up to 3 credits of student advisory committee-approved graduate coursework outside the department may count for focus area credit.

- Minimum 6 hours from:
  - CHEM 5500 Topics in Quantum Chemistry, and/or
  - CHEM 5530 Topics in Statistical Thermodynamics ........................................ 6+ hours

- Minimum 4 hours from:
  - CHEM 5510 Topics in Molecular Symmetry, and/or
  - CHEM 5520 Topics in Physical Chemistry Kinetics, and/or
  - CHEM 5560 Topics in Nanotechnology and Bionanotechnology, and/or
  - CHEM 5570 Selected Topics in Physical Chemistry, and/or
  - CHEM 5580 Practicum in Physical Chemistry .............................................. 4+ hours

Breadth Course Requirement

- Minimum 4 hours CHEM 5XY0 (X≠0 or 5, Y=0-8) ........................................... 4+ hours

Directed Studies/Dissertation Research ........................................................................... 2+ hours

2 hours minimum CHEM 6980 Research for Doctoral Dissertation.

Up to 9 credits CHEM 5990 Independent Studies. Up to 6 credits CHEM 5960 Directed Readings in Chemistry.

TOTAL ........................................................................................................... 90 hours