

# MAJOR MAP FOR BACHELOR OF SCIENCE IN PHYSICS COMPUTATIONAL CONCENTRATION (PHYSBS-CMPT) 2019-20 THROUGH 2024-25 CATALOG YEARS

Name: \_\_\_\_\_ ID Number: \_\_\_\_\_ Date: \_\_\_\_\_ Anticipated Graduation Semester: \_\_\_\_\_

## PHYSBS-CMPT Degree Snapshot

### University Perspectives (0-1 hr)

\_\_\_\_\_ UNIV 10051, University Perspectives or exemption

### State Core English Composition (0-6 hrs)

\_\_\_\_\_ ENGL 10103, Composition 1 or exemption

\_\_\_\_\_ ENGL 10203, Composition 2 or exemption

### State Core US History or Government (3 hrs)

\_\_\_\_\_ US HIST/PLSC \_\_\_\_\_

### State Core Mathematics (0 hrs)

Met with Courses in major

### State Core Natural Sciences w/ labs (0 hrs)

Met with courses in major.

### State Core Social Sciences (9 hrs)

\_\_\_\_\_ Social Science \_\_\_\_\_

\_\_\_\_\_ Social Science \_\_\_\_\_

\_\_\_\_\_ Social Science \_\_\_\_\_

### State Core Fine Arts (3 hrs)

\_\_\_\_\_ Fine Art \_\_\_\_\_

### State Core Humanities (3 hrs)

\_\_\_\_\_ Humanities \_\_\_\_\_

### Non-Physics Sciences (8 hrs, see list below)

\_\_\_\_\_ Science \_\_\_\_\_

\_\_\_\_\_ Science \_\_\_\_\_

### Mathematics Courses (19-26 hrs)

\_\_\_\_\_ MATH 11003, College Algebra (or [math placement](#) in to higher math)

\_\_\_\_\_ MATH 13004, Pre-Calculus OR MATH 12003, Plane Trigonometry (or [math placement](#) in to higher math)

\_\_\_\_\_ MATH 24004, Calculus I

\_\_\_\_\_ MATH 25004, Calculus II

\_\_\_\_\_ MATH 26004, Calculus III

\_\_\_\_\_ MATH 25804, Elementary Differential Equations

\_\_\_\_\_ MATH 30803, Linear Algebra

### Physics Core (22 hrs)

\_\_\_\_\_ PHYS 20304, University Physics I

\_\_\_\_\_ PHYS 20404, University Physics II

\_\_\_\_\_ PHYS 20504, University Physics III

\_\_\_\_\_ PHYS 34503, Electromagnetic Theory I

\_\_\_\_\_ PHYS 36103, Modern Physics

\_\_\_\_\_ PHYS 40703, Introduction to Quantum Mechanics

\_\_\_\_\_ PHYS 49901, Physics Seminar

### Computational Concentration (16 hrs)

\_\_\_\_\_ PHYS 31103, Analytical Mechanics

\_\_\_\_\_ PHYS 3610V, PHYS 35404, or PHYS 32103

Choose **9-12 hrs** (depending on number of hours taken for lab requirement above) of 30000+ PHYS, ASTR, CSCE, or MATH courses consultation with department. (hours of individual courses may vary.)

\_\_\_\_\_ PHYS/ASTR/CSCE/MATH 30000+ \_\_\_\_\_

\_\_\_\_\_ PHYS/ASTR/CSCE/MATH 30000+ \_\_\_\_\_

\_\_\_\_\_ PHYS/ASTR/CSCE/MATH 30000+ \_\_\_\_\_

\_\_\_\_\_ PHYS/ASTR/CSCE/MATH 30000+ \_\_\_\_\_

### General Electives (23-37 hrs)

How you use these hours will depend on your educational and career goals. Early in your degree you might use this section to jot down ideas for how to plan. As you get closer to graduation, you might use this section to track which classes you've taken outside the above requirements.

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## Advising Notes

## Graduation Plan

Use the following additional resources, in addition to this major map, to complete your graduation plan ([Catalog](#), and your [Degree Audit](#) in UAconnect). Many students have more than one major, minor, or pre-professional goal that has additional required classes. This tool allows you to combine all your educational goals in to one plan.

High School credit	List all Advanced Placement, International Baccalaureate, Dual or Concurrent credit			
Year	Fall	Spring	Summer	Total
Year 1				Total 1 <sup>st</sup> year credit hours (aim for 30):
Year 2				Total 2 <sup>nd</sup> year credit hours (aim for 60):
Year 3				Total 3 <sup>rd</sup> year credit hours (aim for 90):
Year 4				Total 4 <sup>th</sup> year credit hours (Must be at least 120):

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### Graduation Checklist (does your plan include the following):

- 2.0 minimum overall UofA GPA (Courses taken at other colleges or universities are not factored into this GPA)
- All state minimum core requirements
- All Major(s)/Minor(s) requirements
- [Writing requirement](#) complete
- At least 50% of each major/minor taken from UofA
- 24 hours of 30000+ classes exclusively from Fulbright College of Arts and Sciences classes
- 30 hours of 30000+ classes exclusively from the University of Arkansas. This can include courses taken for the 24-hour rule.
- 40 hours of upper-level classes. (30000+ or 20000+ with a pre-requisite. Can include transfer credit.) This can include courses taken for the 24-hour and 30-hour rules.
- 120 total eligible credit hours (see below for a list of ineligible classes)

Please visit <https://catalog.uark.edu/undergraduatecatalog> for an extensive list of core, major, graduation, and pre-requisite requirements. To read more about individual classes, visit the [courses of instruction](#) page for course descriptions.

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## Degree Requirement Breakdown by Category

The following information is designed to help you navigate your experience in your degree and answer common questions that may come up for each requirement.

Category	Degree Requirements	Curriculum Notes
<a href="#">UNIVERSITY PERSPECTIVES</a>  0-1 hr	<ul style="list-style-type: none"> <li>UNIV 10051, University Perspectives (or UNIV 100H1)</li> </ul>	Or equivalent from another University of Arkansas college. (AFLS 102H3, ARSC 12001, GNEG 11101, GNEG 111H1, HIST 1003(H), HIST 10001, HIST 100H1, PLSC 10003, PLSC 100H3, BUSI/WCOB 11101, WCOB/BUSI 111H1)  <b>Note:</b> students who transfer to the University of Arkansas with at least 24 credit hours will have this requirement waived.
<a href="#">STATE CORE COMPOSITION</a>  0-6 hrs	<ul style="list-style-type: none"> <li>ENGL 10103, Composition 1 or SAT/ACT exemption (or ENGL 101H3)</li> <li>ENGL 10203, Composition 2 or SAT/ACT exemption (or ENGL 102H3)</li> </ul>	See <a href="#">Catalog</a> for information about placement and/or exemption.
<a href="#">STATE CORE US HISTORY or GOVERNMENT</a>  3 hrs	<b>Choose 1: *</b> <ul style="list-style-type: none"> <li>HIST 20003, History of the American People to 1877</li> <li>HIST 20103, History of the American People 1877 to Present</li> <li>PLSC 20003, American National Government (or PLSC 200H3)</li> </ul>	*Some courses may appear as options in multiple areas of the State Core. You can only count each course 1 time in the State Core and will need unique courses in each of the content areas below.
<a href="#">STATE CORE MATHEMATICS</a>  0 hrs	Met with courses in major	Based on ACT/SAT or other math placement scores, students may need to enroll in additional remediation related courses. See <a href="#">catalog</a> or <a href="#">math placement</a> website for additional information.
<a href="#">STATE CORE NATURAL SCIENCES CORE</a>  0 hrs	Met with courses in major	
<a href="#">STATE CORE SOCIAL SCIENCES</a>  9 hrs	<b>Choose 3: *</b> <ul style="list-style-type: none"> <li>AGEC 11003, Principles of Agriculture Microeconomics (or AGECE 110H3)</li> <li>AGEC 21003, Principles of Agriculture Macroeconomics (or AGECE 210H3)</li> <li>ANTH 10203, Intro to Cultural Anthropology (or ANTH 102H3)</li> <li>COMM 10203, Communication in a Diverse World (or ANTH 102H3)</li> <li>ECON 21003, Principles of Macroeconomics (or ECON 210H3)</li> <li>ECON 22003, Principles of Microeconomics (or ECON 220H3)</li> <li>ECON 21403, Basic Economics: Theory and Practice (or ECON 214H3)</li> <li>EDST 20003, Introduction to Educational Studies</li> <li>GEOG 11103, Human Geography (or GEOG 111H3)</li> <li>GEOG 21003, World Regional Geography (or GEOG 210H3)</li> <li>HDFS 14003, Life Span Development (HDFS 140H3)</li> <li>HDFS 24103, Family Relations (or HDFS 241H3)</li> </ul>	Students must take classes from at least two departments in the Social Sciences category.  *Some courses may appear as options in multiple areas of the State Core. You can only count each course 1 time in the State Core and will need unique courses in each of the content areas below.

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	<ul style="list-style-type: none"> <li>• HDFS 26003, Rural Families &amp; Communities (HDFS 260H3)</li> <li>• HIST 11193, Institutions and Ideas of World Civilizations I (or HIST 111H3)</li> <li>• HIST 11293, Institutions and Ideas of World Civilizations II (or HIST 112H3)</li> <li>• HIST 20003, History of the American People to 1877</li> <li>• HIST 20103, History of the American People 1877 to Present</li> <li>• HIST 20903, Animals in World History</li> <li>• HUMN 111H4, Honors Roots of Culture to 500 C.E. (Honors only)</li> <li>• HUMN 211H4, Honors Birth of Modern Culture, 1600-1900 (honors only)</li> <li>• INST/PLSC 28103, Intro to International Relations &amp; Global Studies (or INST/PLSC 281H3)</li> <li>• JOUR 10203, Media and Society</li> <li>• PLSC 20003, American National Government (or PLSC 200H3)</li> <li>• PLSC 20103, Intro to Comparative Politics</li> <li>• PLSC 21003, State and Local Government</li> <li>• PSYC 20003, General Psychology (or PSYC 200H3)</li> <li>• RESM 28503, Leisure and Society (or RESM 285H3)</li> <li>• SOCI 10103, General Sociology (or SOCI 201H3)</li> <li>• SOCI 20103, Social Problems</li> <li>• STEM 20003, The Art of STEM Communication</li> </ul>	
<p><b>STATE CORE FINE</b> <u><a href="#">ARTS</a></u>  3 hrs</p>	<p><b>Choose 1: *</b></p> <ul style="list-style-type: none"> <li>• ARCH 10003, Architecture Lecture (or ARCH 100H3)</li> <li>• ARHS 10003, Art Lecture (or ARHS 100H3)</li> <li>• COMM 10003, Film Lecture (or COMM 100H3)</li> <li>• DANC 10003, Movement and Dance</li> <li>• ENGL 20103, Creative Writing 1</li> <li>• HUMN 211H4, Honors Birth of Modern Culture 1600-1900 (honors only)</li> <li>• LARC 10003, The American Landscape (or LARC 100H3)</li> <li>• MLIT 10003, Experiencing Music (or MLIT 100H3)</li> <li>• MLIT 10103, Music and Society (music majors only. Or MLIT 101H3)</li> <li>• MLIT 13303, Popular Music</li> <li>• THTR 10003, Theatre Appreciation (or THTR 100H3)</li> <li>• THTR 10103, Musical Theatre Appreciation (or THTR 101H3)</li> <li>• THTR 16803, Acting I</li> <li>• THTR 18803, Acting 1 for Theatre majors</li> </ul>	<p>*Some courses may appear as options in multiple areas of the State Core. You can only count each course 1 time in the State Core and will need unique courses in each of the content areas below.</p>
<p><b>STATE CORE</b> <u><a href="#">HUMANITIES</a></u>  3 hrs</p>	<p><b>Choose 1: *</b></p> <ul style="list-style-type: none"> <li>• AAST 20203, The African American Experience</li> <li>• ANTH 10303, Introduction to Archeology</li> <li>• ARCH 10103, Diversity and Design (or ARCH 101H3)</li> <li>• CLST 10003, Introduction to Classical Studies: Greece (or CLST 100H3)</li> <li>• CLST 10103, Introduction to Classical Studies: Rome (or CLST 101H3)</li> </ul>	<p>*Some courses may appear as options in multiple areas of the State Core. You can only count each course 1 time in the State Core and will need unique courses in each of the content areas below.</p>

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	<ul style="list-style-type: none"> <li>• COMM 12303, Media, Community and Citizenship (or COMM 123H3)</li> <li>• DANC 10003, Dance Appreciation</li> <li>• DASC 21303, Data Privacy &amp; Ethics</li> <li>• ENGL 11103, World Literature: Beginnings to 1650 CE (or ENGL 111H3)</li> <li>• ENGL 11203, World Literature: 1650 CE to Present (or ENGL 112H3)</li> <li>• ENGL 12103, Introduction to Literature (or ENGL 121H3)</li> <li>• ENGL 20103, Creative Writing I</li> <li>• GNST 20003, Introduction to Gender Studies (or GNST 200H3)</li> <li>• HIST 11193, Institutions and Ideas of World Civilizations I (or HIST 111H3)</li> <li>• HIST 11293, Institutions and Ideas of World Civilizations II (or HIST 112H3)</li> <li>• HIST 20003, History of the American People to 1877</li> <li>• HIST 20103, History of the American People 1877 to Present</li> <li>• HUMN 112H4, Honors Equilibrium of Cultures 500-1600 (Honors only)</li> <li>• HUMN 22103, Introduction to World Religions</li> <li>• LALS 20103, Introduction to Latin American and Latino Studies</li> <li>• MRST 20103, Introduction to Medieval and Renaissance Studies</li> <li>• MUSY 20003, Music in World Cultures (or MUSY 200H3)</li> <li>• PHIL 20003, Introduction to Philosophy (or PHIL 200H3)</li> <li>• PHIL 21003, Introduction to Ethics</li> <li>• PHIL 22003, Logic</li> <li>• PHIL 23003, Human Nature and the Meaning of Life</li> <li>• PHIL 31003, Ethics and the Professions</li> <li>• THTR 10003, Theatre Appreciation (or THTR 100H3)</li> <li>• THTR 10103, Musical Theatre Appreciation (or THTR 101H3)</li> <li>• Any Intermediate level foreign language numbered at the 20000 level</li> </ul>	
<p><b><u>NON-PHYSICS SCIENCES</u></b></p> <p style="text-align: center;"><b>8 hrs</b></p>	<p><b>Choose 2 sciences from below:</b></p> <ul style="list-style-type: none"> <li>• CHEM 14103/14101, University Chemistry I*</li> <li>• CHEM 14203/14201, University Chemistry II</li> <li>• CSCE 20004, Programming Foundations I</li> <li>• CSCE 20104, Programming Foundations II</li> <li>• BIOL 10103/10101, Principles of Biology</li> <li>• BIOL 10104, Biology for Majors</li> <li>• GEOL 11103/11101, Physical Geology</li> <li>• GEOL 11203/11201, Earth Science</li> </ul>	<p>*Students may count GNEG 11101 in lieu of CHEM 14101. Students will need to ask their academic advisor to adjust their degree audit.</p> <p>**Student may also count MEEG 32002 and 32102 for 4 hours of non-Physics Sciences. Students will need to ask their academic advisor to adjust their degree audit.</p>
<p><b><u>MATHEMATICS COURSES</u></b></p> <p style="text-align: center;"><b>19-26 hrs</b></p>	<ul style="list-style-type: none"> <li>• MATH 11003, College Algebra (or <a href="#">math placement</a> into higher math)</li> <li>• MATH 13004, Pre-Calculus OR MATH 12003, Plane Trigonometry (or <a href="#">math placement</a> into higher math)</li> <li>• <b>MATH 24004</b>, Calculus I (pre-req: MATH 13004, 12003, or <a href="#">math placement</a>)*</li> </ul>	<p><b>Students must earn a C or higher to use a class as a pre-requisite.</b></p> <p>See <a href="#">catalog</a> for additional pre-requisite information for individual classes.</p> <p>*MATH 14005, Calculus I with Review, can also count here.</p>

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	<ul style="list-style-type: none"> <li>• <b>MATH 25004</b>, Calculus II (pre-req: MATH 24004)</li> <li>• <b>MATH 26004</b>, Calculus III (pre-req MATH 25004)</li> <li>• <b>MATH 25804</b>, Elementary Differential Equations (pre-req: MATH 25004)</li> <li>• <b>MATH 30803</b>, Linear Algebra (Pre-req: MATH 24004)**</li> </ul>	<p>**Students may not receive credit for both MATH 30903 and MATH 30803. If students took MATH 30903 instead of MATH 30803, they should seek substitution from the department.</p> <p>**MEEG 27003, can be automatically substituted for MATH 30803. Students will need to ask their academic advisor to adjust their degree audit.</p>
<p><b>PHYSICS CORE</b></p> <p>22 hrs</p>	<ul style="list-style-type: none"> <li>• <b>PHYS 20304</b>, University Physics I (pre-req: MATH 24004)*</li> <li>• <b>PHYS 20404</b>, University Physics II (pre-req: PHYS 20304 and MATH 25004)*</li> <li>• <b>PHYS 20504</b>, University Physics III (Fall only. pre-req: PHYS 20404. Co or pre-req: MATH 26004)**</li> <li>• <b>PHYS 3453</b>, Electromagnetic Theory I (Spring only. pre-req: PHYS 20404 and MATH 26004. Co or pre-req: MATH 25804)</li> <li>• <b>PHYS 36103</b>, Modern Physics (pre-req: PHYS 20404)</li> <li>• <b>PHYS 40703</b>, Introduction to Quantum Mechanics (Fall only. pre-req: PHYS 36103, MATH 25004, and MATH 25804)</li> <li>• <b>PHYS 49901</b>, Physics Seminar***</li> </ul>	<p>*While the catalog states that MATH 24004 and 25004 are pre-requisites to Physics 1 &amp; 2, Physics majors may request to take them as co-requisites by emailing <a href="mailto:physics@uark.edu">physics@uark.edu</a>.</p> <p>**Students may take MEEG 24003 and MEEG 35003 in lieu of PHYS 20504. Students will need to ask their academic advisor to adjust their degree audit once they are done with both.</p> <p>*** Majors must propose participation in a research experience project no later than the end of their junior year of study. A written report of the results must be submitted during Senior Seminar (PHYS 49901). PHYS 49901 meets the Fulbright Writing Requirement.</p>
<p><b>COMPUTATIONAL CONCENTRATION</b></p> <p>16 hrs</p>	<ul style="list-style-type: none"> <li>• <b>PHYS 31103</b>, Analytical Mechanics (Fall only. Co OR pre-req: MATH 25804)*</li> <li>• <b>PHYS 3610V, PHYS 35404, or PHYS 32103</b> (Junior level Laboratory course)**</li> <li>• Choose <b>9-12 hrs</b> (depending on number of hours taken for lab requirement above) of 30000+ PHYS, ASTR, CSCE, or MATH courses consultation with department. (hours of individual courses may vary.)</li> </ul>	<p>Honors students can use some electives for specific course requirements. See below for more details.</p> <p>*Students may take MEEG 20003 and MEEG 20103 in lieu of PHYS 31103. Students will need to ask their academic advisor to adjust their degree audit once they are done with both.</p> <p>** Students may take ELEG 39003 and MEEG 3223 in lieu of PHYS 32103. Students will need to ask their academic advisor to adjust their degree audit once both courses are complete.</p>
<p><b>GENERAL ELECTIVES</b></p> <p>23-37 hrs</p>	<p>Hours will vary depending on math placement and whether a student is exempt from ENGL 10103 and 10203.</p>	<p>Some general electives may need to be upper level to meet college and university residency requirements. See Graduation Checklist on page 3 for more information.</p>
<p><b>WRITING REQUIREMENT</b></p>	<p>The college writing requirement may be satisfied in one of two ways:</p> <ul style="list-style-type: none"> <li>• Completion of PHYS 49901</li> <li>• Successful honors thesis defense</li> </ul>	
<p><b>HONORS</b></p>	<p><b>Minimum Requirements for Honors:</b></p> <ul style="list-style-type: none"> <li>• Maintain cumulative grade point average of 3.5 in all coursework (<b>and a 3.124 PHYS GPA</b>)</li> <li>• Complete a minimum of 12 hours of honors courses from the <b>UofA (including 6 hrs of PHYS 399HV and 3 hrs of PHYS 392H3)</b>.</li> <li>• Complete and defend Honors Thesis</li> </ul> <p>See <a href="#">Catalog</a> for full description of requirements.</p>	<p><b>Honors Thesis Timeline:</b> Honors students should consistently check the <a href="#">honors thesis timeline</a> to stay on track to complete your honors thesis.</p> <p><b>College Honors:</b> Students who also are following the College Honors Plan need to complete additional requirements. Those can be found on the advising website (consult with an academic advisor if you have questions about your catalog year): <a href="#">Academic Planning Resources</a></p>