ASPEN UNIVERSITY

2024-2025

Doctor of Science in Computer Science Handbook

4615 East Elwood Street
Phoenix, AZ 85040

Statement

All students must abide by the Academic Catalog in addition to the programmatic guidelines outlined in this handbook. Both the catalog and handbook are updated annually at a minimum. Students should check back regularly for updates.

To find additional information about this program, please see the program page with the Academic Catalog and university website.

Program Administration

Dean of Business & Technology
Dr. Daniel Zimmerman, D.M., M.B.A.

Certified as true and correct in content and policy by

Joanne Weiss, Provost

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Advisory Board Information

Program Advisory Board

The program advisory board works with university officials to ensure that the program delivers learning that is up to date and relevant to current business, industry, labor, and professional employment practices. Here, the University official is Dr. Daniel Zimmerman, Dean of the School of Business and Technology.

The goal of this advisory board is to aid and assist the University of the Aspen- School of Business and Technology with programmatic recommendations and to assist in the development of new programs and identify best-practice standards. Board members will serve as advisors to the program, providing a connection to and ongoing exchange of information and ideas with members of a broader society. The advisory board shall have no legal responsibilities and is formed to give advice and recommendations to the School Dean and/or representatives of the University.

- Make recommendations to help assure that the program addresses the employment and educational needs of business, industry, labor, and/or the profession.
- Realistically assess the labor market demand for program graduates.
- Advise the program to ensure students graduate with the skills employers need.
- Identify and present opportunities and/or host opportunities for student capstone projects or experiences.
- Assess the currency of curriculum and teaching practices.
- Provide feedback, advice, and/or help with a variety of program-driven tasks and/or projects.
- Assist with program marketing and promotion.
- Assist in the identification and recruitment of new board members.
- Provide recommendations on topic presenters for advisory board meetings.

Advisory board members will represent a cross section of business, industry, labor, and/or the profession relevant to the academic program. A diversity of perspectives is an important aspect of the board's functioning. Diverse perspectives and experiences based on veteran status, gender, race, ethnicity, geographic location, age, and other related qualities will be an important aspect in selecting members.

"The Mission of this Advisor Council is to help create industry ready programs and concentrations that are scalable, build skills sets, and enhance our students' learning and career prospects."

How to Use This Handbook

This Handbook should be used in conjunction with the University catalog, IRB Handbook, and the Dissertation Template that corresponds to your project type. Together, these documents provide the policies, procedures, expectations, and resources you need to successfully complete your program. It is your responsibility to review and understand the materials in these documents. If you have questions not answered in these resources, reach out to your Academic Advisor.

Overview of the Process

The completion of the DSCS program requires five steps. Details about each step are described in this Handbook.

- Complete all core and elective courses with a grade of B or above
- Receive initial approval of the dissertation topic
- Receive chair and committee assignment
- Successfully pass the Dissertation Courses, by meeting required milestones
- Graduate

Coursework

The curriculum is designed to prepare you for the task of completing your dissertation. Throughout the program, you will be reading literature in your general topic area and attending residencies to prepare you for the task ahead. However, there are two specific types of courses directly related to your dissertation.

Research-Preparatory Courses

Research-preparatory courses will get you thinking about your topic and how that topic may lead to your specific research study. During these courses, you will learn skills you must master to complete your dissertation. It is recommended that you enroll in these courses individually (i.e., do not double up and that you devote at least 15-20 hours each week to your studies while in these courses.

- Virtual Residency courses (these occur throughout your program and are non-credit)
- RSH 900- Doctoral Writing and Inquiry into Research
- RSH 910- Research Design and Methodology
- RSH 912- Introduction to Dissertation
- RSH 916- Problem-Based Practice in Action

Dissertation Courses

You will not *officially* begin your dissertation until you are enrolled in your DIS courses and are working under the mentorship of your chair. *Note: You will be assigned your chair by the Dean or the Dean's designee*. The DIS courses are designed to provide regular and extensive evaluation of your work. This regular evaluation allows for maintaining high quality standards throughout the process. These courses require a minimum of 20 hours/week and are 16 weeks in length. ***You must meet all milestones prior to the course end date to receiving a passing grade and enroll in the next course*** (see "Grading for DIS Courses" below).

Applied Research Dissertation (ARD) Milestones by Course

The following table lists the DIS course number, along with the description of the course and the milestones that must occur to pass to the next class.

Course	Description	Milestones
DIS995	Chapter 1 and Establishment of Doctoral Advisory Committee	1) Topic approved by the university 2) Committee-approved Chapter 1 3) Complete your CITI training
DIS996	Chapter 2: Literature Review	1) Committee-approved Chapter 2
DIS997	Chapter 3: Methodology and Ethics	1) Committee-approved proposal (Chapters 1-3), 2) University-approved proposal 3) Submit your IRB application *(note you do not need to receive approval from the IRB prior to the course end date to receive a passing grade).* 4) IRB Approval
DIS998	Chapter 4: Research and Results	1) Committee-approved Chapter 4
DIS999	Discussion of Findings and Oral Defense	1) Committee-approved dissertation (Chapters 1-5) 2) University-approved dissertation 3) Pass final oral defense

Grading for DIS Courses

Students will be required to pass each dissertation course with an A, B, or U. Failure to pass your course work could result in dismissal from the program. The grades you earn in your dissertation coursework will could toward your cumulative GPA.

Doctoral Residencies

Doctoral Residency I: All EDD and DSCS students are required to attend a virtual residency within RSH900. This residency covers the Aspen Library, Student Support, and Advising Teams, Understanding Doctoral Resources, Time Management Strategies, and Self Care. Students reflect on the information and share their reflections as an assignment in the course.

Doctoral Residency II: All EDD and DSCS students must attend a weeklong residency within the D2L classroom with required discussion questions and assignments. The weeklong residency includes two live Zoom sessions with doctoral faculty and doctoral leadership, introducing the expectations and workshopping the topics covered in the residency. The goal of this residency is to allow doctoral students to collaborate and connect with Aspen faculty and peers. Completion of this requirement is due in **Module 7 of RSH912**. Doctoral Residency II is offered quarterly, and students may select one of the weeklong offerings to complete to meet the course requirement. Information on the residency dates and FAQs are located in the Doctoral Lounge.

The Applied Research Dissertation

The Doctor of Science in Computer Science (DSCS) culminates in an applied research dissertation (ARD). A dissertation is a scholarly manuscript that presents a research project designed and implemented by the student. It demonstrates the doctoral student's ability to synthesize and analyze existing research to identify a gap in the field or a problem or opportunity in an organization, and then collect, analyze, and report data stemming from original research. An appropriate research project involves a substantive piece of original, independent research grounded in an appropriate body of literature. A dissertation is not just another academic assignment, research paper, or thesis-like project. It is an exhaustive, scholarly work that is of sufficiently high quality to be published in part in a peer-reviewed journal.

Your dissertation research must be relevant to the field of computer science and present a significant contribution to the field

While your dissertation will likely be the most arduous academic task you have completed to date, it is important to remember that it is first and foremost a demonstration project. It is used by the faculty to determine whether you have met the program's requirements for the conferral of a DSCS degree. It is not your life's work; typically, it is just the beginning.

The dissertation provides an opportunity for the student to demonstrate the ability to:

- Analyze, synthesize, and evaluate data and conclusions in the field of computer science
- Design and implement original research by applying advanced research principles and techniques
- Conduct exhaustive research to the point of information saturation within the field of computer science
- Apply ethics within the industry and adhere to ethical standards
- Contribute significantly to the field of computer science as a scholar-practitioner via the presentation of doctoral-level research, via both the written word and oral presentation

Types of Applied Research for the DSCS Dissertation

The School of Business and Technology have approved the following research traditions to be used at Aspen University for the Doctoral of Science in Computer Science program. Please see the appendix for a brief description of these designs.

- Qualitative Action Research
- Quantitative Research Design

Responsibilities of the Dissertation Team

Each member of the dissertation team has specific responsibilities. The dissertation committee, comprised of a chair and committee member, ensures the dissertation is doable and that the topic is aligned with the degree (DSCS). They provide feedback related to content as specified in the templates (available in DSCS Lounge). The University Reviewer offers a fresh set of eyes and confirms that the milestones meet the university requirements.

While the dissertation committee is collectively responsible for supporting the student, the chair holds the ultimate responsibility for ensuring the dissertation meets the University's standards

Doctoral Student

- Graciously receive constructive feedback aimed and assisting you create an acceptable dissertation (refer to Code of Conduct in the catalog)
- Post in weekly in the DIS course; it is imperative that your chair is kept up to date on your progress
- Make satisfactory progress in your dissertation courses by achieving stated milestones
- Identify problems or concerns early and seek

assistance to help resolve any of these concerns or issues

- Hire outside help as required by your chair or Dean (e.g., editor, writing coach, etc.).
- Work closely with your Chair
- Maintain continuous enrollment
- Complete your degree within 7 years of your enrollment date

Doctoral Chair

- Mentor student through the process
- Post weekly in the DIS course
- Return submissions, with substantial feedback, within 7 business days
- Manage relationships with the committee member and student (all communication must go through the chair – students should never communicate directly with the committee member)
- Determine when documents are ready for committee review
- Send documents to the committee member and university reviewer for review
- Evaluate committee and university reviewer feedback and mentor student through addressing feedback
- Review and ensure the completion of IRB application prior to submitting to the IRB
- When there is a difference of opinion or conflict, negotiate with the committee member, university reviewer and student
- Oversee the implementation of the selected methodology, assuring compliance with program/professional norms and generally accepted ethical and moral principles regarding human subjects
- Maintain CITI training and qualifications as determined by the Dean

Committee Member

- Provide substantial feedback on each milestone, within 7 business days
- Participate in the final oral defense
- Maintain CITI training and qualifications as determined by the Dean

Institutional Review Board

Aspen University established an Institutional Review Board (IRB) in 2013 to protect the interests of human participants in research. The primary role of the IRB is the review of all human subject research conducted at Aspen University. The IRB Handbook includes more details. What you need to know related to the IRB in this Handbook is:

- **You may not begin participant recruitment or any data collection prior to formal IRB approval (this happens in DIS997).** Only the IRB has the authority to approve research. The student is responsible to acquire IRB approval to ensure that the research is conducted in the appropriate manner. *Failure to secure IRB approval prior to recruiting participants and/or collecting data will result in consequences ranging from the requirement to discard collected data to immediate dismissal that cannot be appealed.*
- You will complete training related to human subjects in course DIS995 and learn all you ever wanted to know about the IRB and your role in protecting the rights and welfare of human participants. The training is called CITI and is explained in this short video.
- Studies that propose research on protected or vulnerable populations will require a full board review, which can be a lengthy process. As such, if you have questions or concerns about a proposed sample work with your chair (who will work with the IRB) early on to prevent potential barriers (see the IRB Handbook for details). Remember, the dissertation is a demonstration project, not your life's work.

Writing Requirements

To ensure consistency in the arrangement and organization of the content, you are required to adhere to the formatting guidelines as specified in the template and form and style checklist (see Appendix B (p. 14)). All dissertations must follow the current edition of the American Psychological Association (APA) Manual.

Writing Resources

- University Writing Center
- American Psychological Association
- Grammarly
- Plagly
- PurdueOwl
- Excelsior Online Writing Lab

References

The primary sources of references for a dissertation are peer-reviewed articles that will be located through the Aspen library. Approximately 85% should be published in the last 7 years. The ***average*** dissertation contains between 80-100 references but understand that you will read many times that number of articles during the process (that is, while 80-100 will end up in your reference section, you will likely read 300-1,000 articles during the process). The number of references is based on the needed resources to adequately examine your topic. Your chair, in consultation with the committee, will determine if the number of references is sufficient for your topic.

Doctoral Project Length

While there is no set number of pages for a dissertation, it should be a minimum of 100 total pages, *excluding* the preliminary pages and the references. An average dissertation is between 100 to 200 pages in length. The length depends on the topic, methodology, etc. Page recommendations by chapter appear in the templates.

Dissemination

Aspen University holds to the tradition that doctoral graduates, as a member of the scholarly community, make their research available to interested persons. This recommendation is met when the graduate submits the dissertation for publication to external indices or journals. Please discuss with your Chair your goals with your final project. Doctoral graduates from the DCSC program will have the opportunity to publish their scholarly work in ProQuest.

Vetted Editors for Publication

Please note that this list is subject to change and the doctoral student is responsible for all charges incurred during the editing process. These recommendations are just that: recommendations, and Aspen University and the School of Business and Technology have no affiliations with these organizations. Doctoral students must do their own due diligence.

Recommended Editing Services

Dissertation Editor

Dissertation Genius

Dissertation Prep

Binding

If you would like a hard copy of your dissertation, you may choose to bind it. For more information on the process, email: mail@phdbookbinding.com.

Final Oral Defense

Doctoral students are expected to be able to present ideas in a cogent manner both in writing and orally. The DSCS program requires one oral defense conducted at the conclusion of the study in your DIS999 course, once committee and university approval has been granted. The final oral dissertation defense is the last formal step in the dissertation process. The purpose of the oral defense is to ensure the student can present their research and appropriately answer questions related to the findings and implications.

Notes About the Oral Defense

- Oral defenses occur on Zoom (camera must be turned on) and are scheduled for 60 minutes.
- The Chair will provide the Dean of the School of Business and Technology a time for the final defense and the Dean will provide the committee with a Zoom link.
- The defense will be recorded and archived at Aspen University.
- Any faculty or student affiliated with Aspen University may attend the final oral defense and a link will be posted in the DSCS lounge for members of the program to attend and/or family and friends.Anyone who is not part of the committee will be muted and not allowed to speak during the completion of the final oral defense.
- Candidates must use the Aspen University approved slide deck for their PowerPoint presentations (this slide deck can be found in the DSCS lounge).
- The student will present their final PowerPoint presentation with a time allotment of 30-35 minutes to be followed by a question-and-answer period from the committee. This Q&A period will last about 10-15 minutes and committee deliberation lasts 5-10 minutes.
- Students will be asked to leave the meeting room prior to committee deliberation and will be called back once a decision is made.
- Dispositions for an oral defense are:
    - Approved with no changes (pass)
- If the decision of the committee is not unanimous, the case is referred to the Dean for resolution.
- Approved with changes (pass) – note that minor changes at this stage are common; if changes are required, the student must submit the changes and receive approval from the chair prior to the course end date
- Not approved
    - If the decision of the committee is a “Not Approved,” the chair and Dean formulate a course of action that may include collecting more data, re-analysis of data, requiring an editor, etc.
    - A candidate can only re-defend their dissertation once; a disposition of “Not Approved” on the second attempt results in dismissal
    - Is the candidate cannot make the required changes or re-defend before the course end allotted timeframe, the student must retake the course courses. *This option may only be exercised once.*

Following the oral defense, the Faculty Mentor submits the final grade for DIS999 and the manuscript is sent to the Dean for final review and approval. Once approved, the manuscript will be available within the **Aspen University Digital Repository** located in the Aspen Library. There will also be an option to submit to ProQuest with University approval.

Resources

You will use a number of resources during the dissertation process. University provided resources are listed here. You may find the need to hire an editor, dissertation coach, or statistical consultant. See Tips in Appendix

Library

You will locate the majority of your referenced material through the **Aspen library** (not Google). All students have access to Aspen's Virtual Library through their Classrooms. There you will find numerous databases that can support your doctoral education. From the popular to the highly specialized, this library compiles high-quality, curricula-aligned content—all of it geared toward best supporting students' studies as they progress through their programs. In the Content area of the Virtual Library, you will also find a section on Dissertations & Theses that may prove useful for you. The Virtual Library is regularly updated to provide students with the resources sufficient to complete doctoral program requirements. Aspen's Virtual Librarian offers Aspen students 24/7 librarian services and can be contacted within the Aspen classroom.

Doctor of Computer Science Doctoral Lounge

In the DSCS Doctoral Lounge you will find additional resources to support you through the process. This is a place for you to learn about your program and to collaborate with your peers. There is a group discussion forum (called the "Sidewalk Cafe") within the Table of Contents panel where you can post messages and questions as a way of seeking support from your peers or network. Please remember that the Sidewalk Cafe is public, and as such there needs to be appropriate tone and exemplary professionalism in all communication. All policies associated with the Student Code of Conduct govern the entire Doctoral Lounge. Have fun and use this lounge as a resource for answers and collaboration.

Appendix A Acceptable Types of Research for the DSCS Program

Please also refer to the templates in the Doctor of Computer Science Doctoral Lounge.

The choice of whether to use a qualitative or quantitative methodology is based on the nature of the questions being asked, the state of the field, and the feasibility of the approach with the population of interest.

- **Qualitative Action Research (AR)** is a research methodology that combines elements of qualitative research and action research. It is a systematic approach to understanding and improving specific situations, often within organizational or community settings. Qualitative action research is characterized by its participatory and iterative nature, focusing on generating practical knowledge and solutions to address real-world problems.

  Qualitative action research is a flexible and adaptive approach that is well-suited to addressing complex, context-specific problems in various fields, including education, healthcare, social work, and community development. It emphasizes collaboration, learning, and the application of research findings to create tangible improvements in real-world situations.

- **Quantitative Research** is a systematic and structured research endeavor that employs quantitative research methods and techniques to investigate, analyze, and draw conclusions about a specific research question or hypothesis. These projects aim to generate numerical data and statistical findings to gain insights into the relationships between variables, test hypotheses, and make evidence-based conclusions.

  Quantitative research projects are often used to address research questions that involve measurements, comparisons, and relationships between variables that can be quantified. They are valuable in fields like psychology, economics, sociology, education, healthcare, computer and data science and the natural sciences, where numerical data can provide valuable insights and support evidence-based decision-making. The specific details of a quantitative research project can vary depending on the research objectives and the methodology chosen, but they all share the common goal of systematically collecting and analyzing numerical data to answer research questions.

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Appendix B Form and Style Checklist

Additional Notes

Please align your work with the current Form and Style guide that is in the DSCS Lounge. Prior to final submission and/or publication, doctoral students and their manuscripts must adhere to this style guide.

Do

- ¨Use a grammar and spell checker (recommended: Grammarly Pro)
- ¨Check your references (recommended: reciteworks.com)
- ¨Include only three level headings in your TOC (i.e., if you use a 4th level heading in your manuscript, do not include these headings in your TOC).

Do Not

- ¨Include headers in the manuscript
- ¨Hyphenate at the right margin