Carnegie Mellon University
HeinzCollege
INFORMATION SYSTEMS • PUBLIC POLICY • MANAGEMENT

Academic Year 2024-2025

Master of Science in Health Care Analytics and Information Technology (MSHCA) Student Handbook Addendum

Table of Contents

1. Introduction

This handbook provides specific information on the curriculum and program requirements for the Master of Science in Health Care Analytics and Information Technology (MSHCA) program. The Heinz College also publishes a separate handbook which details College-wide policies and procedures pertaining to educational planning, program committee, teaching, scheduling and course credit, performance standards, academic standing, ethics and discipline, student privacy rights and major forms and deadlines.

While this handbook is specific to your academic experience in the department, it is just one element of the Graduate Student Handbook Suite. There are several other resources within the suite that you should consult when needed:
- [The Heinz College Handbook](#)
- [University-Wide Graduate Student Handbook](#) (Office of Graduate & Postdoctoral Affairs)
- [The Word Student Handbook](#)

2. MSHCA Program Outcomes and Competencies

Students in the Master of Science in Health Care Analytics & Information Technology (MSHCA) program learn how to convert raw data into actionable solutions for complex problems facing the health care system and medical firms. Heinz College will empower students to use advanced tech and data to change the health care system for the better.

At the completion of the MS Health Care Analytics & Information Technology program, students will be able to:
- Lead and manage in health care analytics and IT entities
- Analyze and synthesize data to solve problems and make decisions
- Assess the role and use of information technology to address business problems
- Communicate and interact effectively with health care industry stakeholders
- Understand and apply foundational knowledge of the evolving health care industry

3. Department Personnel

The staff listed below are directly associated with the MSHCA program. There is a robust team at Heinz College and CMU available to help you navigate your education, from financial aid and student services to disability services and more.

Alexandra Lutz	Interim Associate Dean for Public Policy, Program Director for MSHCA Program	alutz@cmu.edu
Angeline Sandor	Academic Advisor, MSHCA Program	asandor@andrew.cmu.edu
Annie Julian	Associate Director of Student Affairs	ajulian@cmu.edu
Tiaona Cade	Associate Director, Career Advisor for MSHCA Program	tcade@andrew.cmu.edu
Bella Lassiter	Senior Academic Coordinator, School of Public Policy	alassite@andrew.cmu.edu

4. Curriculum

4.1. MSHCA Program Requirements

Students will complete the MSHCA program in four semesters, full-time, at the Pittsburgh, PA campus.

In order to successfully complete the MSHCA program, you must complete:

- 192 units of course credit (a maximum of 36 units of graduate-level, degree-relevant courses outside of the Heinz College to count towards your unit minimum);
- all Core courses (unless you exempt them);
- an approved internship between the first and second year;
- all other standards for graduation, including meeting minimum grade point averages.

Please Note: You will be pre-registered for your first semester of classes. You will register yourself for the remaining semesters.

Students who entered the MSHCA program **prior to Fall 2024** should follow the curriculum outlined in the handbook of when they entered the program. Archived handbooks can be found on the Heinz College Current Student website.

4.2. Core Curriculum/Course Sequencing

You must complete the Core and elective requirements listed on the pages that follow in order to graduate. You must take Core courses in the sequence shown on the unless you obtain permission in advance from your Academic Advisor.

Incoming Class of F2024 Healthcare Analytics and IT Course Schedule		
Course #	**Course Title**	**Units**
	Fall Courses - Year 1	**48 total**
90836	Health Systems	6
90777	Intermediate Statistical Methods	6
90838	Database Management for Policy Analytics	12
90819 95888	Intermediate Programming with Python OR Data Focused Python (based on placement)	6
90800	Exploratory Data Analysis	6
95717	Writing for Information Systems Management	6
90718	Strategic Presentation Skills	6
	Spring Courses – Year 1	**48 total**
94706	Health Care Information Systems	12
90861	Health Policy	6
94834	Applied Econometrics I	6
90755	Optimization	6
90775	Decision & Risk Modeling	6
90803	Machine Learning Foundations with Python	12
94900	Analytics Summer Internship (Required)	0
	Fall Courses – Year 2	**48 total**
94705	Health Economics	12
95719	Accounting and Finance Analytics	6
94700	Organizational Design and Implementation	6
90831	Financial Applications in HC	3
94867	Decision Analytics for Business & Policy	12
--	Electives	9+

	Spring Courses – Year 2	48 total
XXXXX	Applied Analytics in Health Care	TBD
94775	Practical Unstructured Data Analytics	6
94739	*Systems Synthesis/Capstone Project (fall/spring preference)*	*12-18*
--	Electives	30+
*192 Units required to graduate (153 core; 39 elective)		

4.3. Specializations

Our Health Care Specializations are an **optional** mechanism for students to organize their elective units towards particular career pathways. They provide depth in a particular area of the health care industry and allow students to communicate this depth to potential employers.

Specializations consist of the 30 elective units and are comprised of foundation electives and selected elective courses. Students must complete the foundation courses in order to claim the specialization and then can fill in the remaining units with selected electives from the list provided.

Specializations do not appear on transcripts or diplomas, but they are "declared" and tracked within our internal systems. When you wish to declare your specialization, you will fill out the "Heinz Concentration Declaration Form" with your intended specialization and intended coursework. You will receive approval from your Academic Advisor.

4.3.1. Health Care Policy Specialization

The Health Care Policy Specialization aims to prepare students to create and evaluate health policies. Students pursuing this concentration will be able to think strategically about the political, economic and social environment in which health care is delivered to inform critical policy creation and analysis.

MSHCA students pursuing this specialization will take one 12-unit foundation course and a minimum of 18 elective courses from the list below, for a total of 30 units.

Course #	Title	Type	Dept.	Sem.	Units
90714	**Policy & Politics in American Institutions**	**Foundation**	**HNZ**	**Spring**	**12**
90823	Program Evaluation	Elective	HNZ	Fall/Spring	12
90730	Policy Analysis in Practice	Elective	HNZ	Fall	12
90882	Behavioral Economics in Public Policy	Elective	HNZ/SDS	Fall	12
90754	Elective Politics and Policy-Making	Elective	HNZ	Fall/Spring	6
90822	Critical Analysis of Policy Research	Elective	HNZ	Fall	6
94890	Race, Politics and Policy in the US	Elective	HNZ	Fall	6
94834 & 94835	Applied Econometrics I & II	Elective	HNZ	Fall/Spring	6 ea.

4.3.2. Health Care Administration Specialization

The Health Care Administration Specialization aims to prepare students to lead operational business units, particularly in health systems and health insurance companies.

MSHCA students pursuing this specialization will take one 6-unit foundation course and a minimum of 24 elective courses from the list below, for a total of 30 units.

Course #	Title	Type	Dept.	Sem.	Units
45967	**Healthcare Operations**	**Foundation**	**TPR**	**Spring**	**6**
94814	Evidence-Based Management	Elective	HNZ	Fall	6
94811	Strategy Development	Elective	HNZ	Fall/Spring	6
94813	Project Management	Elective	HNZ	Fall/Spring	6
94838	Advanced Project Cost Mgmt with Power BI	Elective	HNZ	Fall	6
45864	Operations Strategy	Elective	TPR	Fall/Spring	6
45965	Service Management	Elective	TPR	Fall	6

4.3.3. Health Care Products and Entrepreneurship Specialization

The Health Care Products and Entrepreneurship Specialization aims to give students the foundational skills to lead in the management and development of health care products. Students will gain core knowledge in areas of the entrepreneurial process, product strategy, and marketing.

MSHCA students pursuing this specialization will take one 6-unit foundation course, a 12-unit capstone that will replace their existing Heinz systems/capstone requirement, and a minimum of 12 elective courses from the list below, for a total of 30 units.

Course #	Title	Type	Dept.	Sem.	Units
45805	**Lean Entrepreneurship**	**Foundation**	**TPR**	**Fall/Spring**	**6**
45996	**Corporate Startup Lab***	**Capstone**	**TPR**	**Spring**	**12**
95819	A/B Testing, Design and Analysis	Elective	HNZ	Fall	6
95851	Making Products Count: Data Science for Product Managers	Elective	HNZ	Spring/Fall	6
94708	Applied Strategic Marketing	Elective	HNZ	Fall	6
95794	Tech Startup: Market Discovery	Elective	HNZ	Fall	6
90845	Social Innovation Accelerator	Elective	HNZ	Spring	6
42744	Medical Devices	Elective	BME	Fall	12
19657	Special Topics: Introduction to Venture Finance	Elective	EPP	TBD	6
19694	Leadership and Innovation Management	Elective	EPP	Fall	6
45806	Entrepreneurial Alternatives	Elective	TPR	Spring	6
45905	Funding Early Stage Ventures	Elective	TPR	Fall/Spring	6
45877	Contracts	Elective	TPR	Spring	6

*There is an application for the Corporate Startup Lab course. Please discuss at the time of your declared specialization with the Program Director.

4.4. Systems Synthesis/Capstone Projects

Systems Synthesis Projects allow students to apply the diverse skills developed in the classroom to a "real world" problem with a "real world client" in the design of a specific functioning public or non-profit sector system. The term "system" refers to the fact that the particular entity studied has an identifiable objective or function, and the word "synthesis" refers to the fact that the desired output is an integrated "design" for improved operation of that system.

In a Systems Synthesis Project, you will work in a group to structure a problem, do appropriate analysis using quantitative and analytical tools, generate recommendations to solve or ameliorate the problem, and present the analysis and recommendations to the client in both written and oral form. The experience will be designed to sharpen your problem-solving skills and skills in working effectively in groups.

Students must either complete the required 94-739 Systems Synthesis course or pre-approved alternatives that the Program Director will announce during the spring of the first year.

4.4.1. Organization of Systems Synthesis Projects

Projects must be supervised by at least one faculty member who maintains relations with the client, directs and critiques the students' work, coaches them for their presentations, coordinates relationships with a Project Advisory Committee, and grades the students on their contributions to the projects as well as grading the overall projects. Students will receive a detailed course guide that covers the logistics and requirements for Systems Synthesis Projects.

4.4.2. Development of of Systems Synthesis Projects

Typically, proposals are generated by faculty and by organizations external to the School. In recent years, some very successful proposals have come from students with an interest in a particular problem. The HCA Program Director is available to assist students who are interested in developing their own proposals. If you are interested in organizing a project, you must submit a proposal to the HCA Program Director including as many of the following items as possible:

- a brief description of the system to be studied
- the system client if identified
- the kinds of alternative improvements to be considered
- the types of data that would be used in such an analysis and how you intend to gather that data
- the analytical approaches you anticipate you will use in the study
- the name(s) of proposed faculty advisors
- a list of students interested in the project

It is certainly not necessary to have all of the aspects of a project listed above in place in order to submit a proposal. If you need assistance with any aspect of developing a project, contact the HCA Program Director. The three most critical factors are a well- defined project idea, significant interest from students, the feasibility of completing the project, and the ability of the Associate Dean to assign a faculty member to supervise the project. The latter depends a great deal on the needs for individual faculty to teach other courses in the curriculum.

Projects proposed by students will be subject to review by the faculty for feasibility and suitability as a systems project.

4.4.3. Assignment of Students to Projects

The Program Director will solicit student preferences in the spring of the first year. Students will indicate preferences for project semester (Fall or Spring) and content (client type, problem solving approaches, etc.).Student preference is an important consideration in project assignment. A Committee consisting of the Program Director and Faculty will also consider the link between the skills of the student and the nature of the tasks in the Systems courses.

4.4.4. Grading of Systems Synthesis Projects

You will receive a Systems Synthesis grade based on your individual and group performance. In any group project there is an inherent tension between rewarding individual and group performance. This tension is in part by design, as it reflects some of the realities of group staff work in public and private organizations. Grades in Systems Synthesis courses are a combination of individual and group considerations. It is generally desirable

that students perform multiple roles in projects, and it is recommended that faculty and student evaluations consider these various contributions.

5. Internship Requirement

MSHCA students are required to spend the summer following their first year in the program gaining professional experience in management and analysis by working in a public agency, non-profit organization, or private firm. Your internship duties must have significant educational value.

Your internship will train you in ways significantly different from classroom instruction. By working in a professional environment, you will solidify the knowledge gained in your Heinz College coursework, refine career interests, and establish personal networks that might lead to later career opportunities. You also can earn income, though Heinz College does accept unpaid internships.

Students are responsible for securing a suitable internship. The [Mary Beth and Miles Reidy Career Center](#) aids in this search through counseling, workshops on resume preparation and interview skills, and listings of potential internships. Students are strongly encouraged to make appointments with their Career Services advisor to discuss their search and are encouraged to come to workshops that cover the essential skills for finding the right internship.

International students are required to consult with the [Office of International Education](#) for eligibility for work authorization before starting or seeking an internship/co-op or consulting opportunity. International students will benefit from proactively reviewing OIE guidance regarding off-campus [work authorization](#). Off-campus work authorization processing times can take several weeks or months, and international students will benefit from starting the off-campus work authorization process as early as possible.

5.1. Securing an Internship

Students are responsible for securing a suitable internship. Heinz College Career Services will provide assistance through counseling, workshops on resume preparation and interview skills, and listings of potential internships. Students can make an appointment to discuss their situation and are encouraged to come to workshops that cover the essential skills for finding the right internship.

5.2.   Internship Requirements

- Students must attend an internship information session in the spring semester hosted by Career Services to learn more about specific internship requirements and support given by Career Services
- The internship duration is a minimum of 300 hours and is to be completed in the summer between your first and second year only
- Students may only report one internship unless otherwise approved by Career Services
- Internship must be reported no later than the last business day of June
- Students must complete the Heinz Internship Extension Course administered by Career Services via Canvas. Students will be automatically enrolled and there will be associated modules with assignments in which completion of these modules is a requirement to pass the Internship Course
- The Canvas Course includes the step to report the internship. The internship will be verified with the students' supervisors and then approved. Students must notify their Career Advisor of any significant changes in their internships, such as length, location, hours of work, etc.
- Once the internship has been approved, students will be registered for the zero-unit internship course. Students will not receive academic credit for the internship, but it will be reflected on their transcript as a course with P/NP grade. If a student plans to exempt the internship, they will need to complete the [Petition for Course Exemption](#).
- Once the student has started their internship, they will receive a survey to complete verifying their supervisor's contact information as well as skills evaluation.
- At the end of your internship your Career Services Advisor will request that your supervisor complete an evaluation form about your internship performance. You are also required to complete an evaluation survey about how your internship fulfilled the educational goals of the program.

If you do not successfully complete an eligible internship along with the supervisor verification and survey, you will not fulfill your internship requirement necessary for graduation.

5.3. International Student (F-1/J-1) Internship Considerations

F-1 Status Students: You must apply for [Curricular Practical Training](#) (CPT) employment authorization for your summer internship if your degree program requires you to complete a summer internship. CPT authorization is required regardless of the internship being paid or unpaid. CPT is only available to F-1 students who have not graduated and who have been enrolled on a full-time basis for one full academic year (i.e., fall and spring.) Exception: graduate students in programs that require an internship in their first year will be eligible for CPT next summer if they are able to arrive in the US for in person instruction at the start of the spring semester. Processing CPT may take up to 2 weeks and you cannot begin employment until you receive authorization. Guidelines, forms, and instructions can be found at [Curricular Practical Training (CPT) - Office of International Education - Office of Enrollment Management - Carnegie Mellon University](#).

J-1 Status Students: You will need to apply for and obtain [Academic Training](#) before beginning your internship or fellowship. If your program sponsor on your DS-2019 is Carnegie Mellon University, follow the [steps](#) to obtain your Academic Training. If your program sponsor is another entity (such as Fulbright) you must contact Fulbright to learn the steps to receive your Academic Training.

6. Joint Programs

6.1. Accelerated Master's Program (AMP)

The Heinz College offers an Accelerated Master's Program (AMP) for selected Carnegie Mellon undergraduates from the Dietrich College of Humanities and Social Sciences, the College of Fine Arts, the Mellon College of Science, the Carnegie Institute of Technology, and the Department of Engineering and Public Policy. AMP students finish their undergraduate degrees in their senior years while beginning the HCA program at the Heinz College. During the senior year, students remain on undergraduate financial aid and pay undergraduate tuition. After one additional year at the Heinz College, during which they are graduate students and are eligible for Heinz College financial aid, they receive their MSHCA degree. AMP students are required to spend one full academic year (two semesters) as a Heinz College student. **In order to receive your HCA degree, you must pay for two full-time semesters of Heinz College tuition, even if you can complete all degree requirements in a shorter period of time**. Students apply to the AMP program as

juniors. Students interested in the program are encouraged to contact the Heinz College Admissions Office.

The curriculum sequence for AMP students will differ than normal track MSHCA's. Please refer to the course plan established with your Academic Advisor.