



Academic Year 2024-2025

School of Computer Science  
Human Computer Interaction Institute

Master's Student Handbook

Master of Educational Technology  
and Applied Learning Sciences

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# SECTION 1: Welcome & Introduction

Welcome to the Carnegie Mellon community! Congratulations again on being accepted to one of the world's best universities. What our founder, Andrew Carnegie, said over 100 years ago—"My heart is in the work"—still rings true today at Carnegie Mellon.

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 other resources within the suite that you should consult when needed:

- [University-Wide Graduate Student Handbook \(Office of Graduate & Postdoctoral Affairs\)](#)
- [The Word Student Handbook](#)

# SECTION 2: Program Vision, Mission, and Values

## 2.1: Vision

At the Human-Computer Interaction Institute (HCII), we are dedicated to connecting thought leaders in computer science, design, behavioral and social sciences to develop human-centered software, services and systems that improve people's lives through technology.

Our collaborative and interdisciplinary nature connects us with faculty and students in the [School of Computer Science](#), [Dietrich College of Humanities and Social Sciences](#), [Tepper School of Business](#), [College of Fine Arts](#), [College of Engineering](#) and the [Software Engineering Institute](#).

## 2.2: Mission

The HCII is an interdisciplinary community of students and faculty at Carnegie Mellon University (CMU). The HCII's mission is:

- To apply rigor and creativity consistently and pervasively
- To infuse HCI methods appropriately across CMU and beyond
- To push the boundaries of problems HCI addresses
- To expand the tools and methods we use to address those problems
- To deliver artifacts, services and systems that improve people's lives

- To always remember that people are at the heart of our work

## 2.3: Values

**Reasonable Person Principle:** We believe that quality does not come from rules and structure, but from the high standards and a vigorous, exciting environment. Consequently, the department has a bare minimum of rules and requirements. Instead, as in other parts of the Institute and School, we rely on the Reasonable Person Principle. This principle states that we should all operate under the assumption that we are reasonable and intelligent adults in a cooperative community, and that we will act in all situations as a reasonable person would. Everyone is expected to understand that the lack of a specific rule is not a license to game the system, subvert its intent, or do something outside what any reasonable person would see as right. When something is not clear, ask first!

## SECTION 3: Degrees Offered

The HCII at CMU offers multidisciplinary undergraduate and graduate educational programs that emphasize understanding, implementing and evaluating technologies for the benefit of people and society.

In this program, students will earn a Master of Educational Technology and Applied Learning Sciences (**METALS**).

### 3.1. METALS Program Overview

METALS is an intense, interdisciplinary program that condenses a normal two-year graduate program into 12 months. A 16-month option and a part-time option are available as well. The program is taught jointly by leading experts in the [Human-Computer Interaction Institute](#) and the [Dietrich College of Humanities and Social Sciences](#) at CMU. METALS is also part of the CMU's [Simon Initiative](#).

The first and second semesters in the METALS program focus on mastering core knowledge and skills through courses in learning principles, technology design and implementation, and a range of engaging electives. The second semester introduces the [capstone project](#), a substantial team-based industry project with an external client. The third semester over the summer focuses on capstone project exclusively. An optional fourth semester is available for students who would like to take either additional electives or reduce the program intensity by taking the five required electives over a longer period.

Changing tracks from a 12-month option to a 16-month option (or vice versa) is permitted in exceptional circumstances. Changes should be processed before the start of a semester. Students on F-1 or J-1 visas must report program changes to the OIE within 10 days of any changes.

METALS is distinct from both Master of Human Computer Interaction (MHCI) and the Learning Sciences track in the HCII PhD program and is not designed as a feeder to that program.

### **Full-Time Status and Part-Time Status**

Students are considered full-time when enrolled in 36 units or more. Enrollment in fewer than 36 units is classified as part-time. International students must maintain full-time status for all semesters and should consult the Office of International Education if they are not enrolled full-time.

### **Program History**

The curriculum is an outgrowth of the extensive research conducted by the National Science Foundation's Science of Learning Center, [LearnLab](#), in which more than 200 researchers produced more than 2,000 publications and talks as well as over 360 classroom studies from 2004 through 2015. LearnLab partners have employed our research at their own organizations including [Kaplan](#), [Playpower Labs](#), [Acrobatiq](#), [Carnegie Speech](#) and many others.

Carnegie Mellon is known by the software and technical industries for its interdisciplinary nature, rigor and deep knowledge in learning science, human-computer interaction, psychology, design and computer science.

### **Program Goals**

Graduates of the METALS program are trained to design, develop, and implement advanced solutions, making sense of state-of-the-art technologies and methods such as:

- Artificial Intelligence
- Machine Learning
- Language Technologies
- Intelligent Tutoring Systems
- Educational Data Mining
- Tangible Interfaces

Upon completion of the METALS program, graduates:

- Understand how these technologies can be applied to education and instruction and are able implement innovative and effective educational solutions.
- Apply cognitive and social psychology principles relevant to research-informed instructional design.

- Possess the instructional and interaction design skills needed to create solutions that not only enhance learning but are also desirable.
- Understand the role of and have properly apply psychometric and educational data mining methods in evaluating and improving educational solutions.
- Develop continual improvement programs that employ in vivo experiments and educational data mining to reliably identify best practices and opportunities for change.

## SECTION 4: Departmental Personnel

This section identifies key people that graduate students should know and will need to interact with at some point throughout their program.

### **METALS Program**

- Ken Koedinger, METALS Faculty Director, [koedinger@cmu.edu](mailto:koedinger@cmu.edu), NSH 3601, 412-268-7667
- Michael Bett, METALS Managing Director, [mbett@cmu.edu](mailto:mbett@cmu.edu), NSH 2619, 412-268-8616
- Lorraine Li-Hagerty, METALS Academic Program Manager, [lhagerty@cmu.edu](mailto:lhagerty@cmu.edu), NSH 2619, 412-268-1099
- Mary Kate Noonan, Administrative Coordinator, [mknoonan@cmu.edu](mailto:mknoonan@cmu.edu), NSH 3526, 412-268-6162

### **HCII Administrative**

- Brad Meyers, HCII Director, [bam@cs.cmu.edu](mailto:bam@cs.cmu.edu), NSH 3519

### **School of Computer Science**

- Martial Hebert, Dean and University Professor, [mhebert@andrew.cmu.edu](mailto:mhebert@andrew.cmu.edu), GHC 6105
- David Garlan, Associate Dean for Master's Programs, [garlan@cs.cmu.edu](mailto:garlan@cs.cmu.edu), TCS 420

### **METALS Mailing Address**

HCII / METALS  
 School of Computer Science  
 Carnegie Mellon University  
 5000 Forbes Avenue  
 Pittsburgh, PA 15213

## SECTION 5: Departmental Resources

**Printers** are available throughout SCS buildings for your use. Please see <https://computing.cs.cmu.edu/desktop/printing> for instructions on how to use them.

**Conference rooms** are available for your use in all libraries and academic buildings. Mary Kate Noonan can assist you in reserving conference rooms in Wean Hall, Gates-Hillman and Newell Simon Hall.

Your **CMU student ID card** will give you access to the main entrances for most of the academic buildings on the CMU Pittsburgh campus. You will pick up your student ID card via the [ID Card Services](#) (basement of Warner Hall) or from Mary Kate Noonan. You will receive more details before the METALS orientation.

**METALS Annex** (3<sup>rd</sup> floor, FMS building) is the shared space for METALS students. Keep it clean and be respectful of your fellow students. A limited number of office supplies are available for you in the Annex, as well as a coffee maker, refrigerator, and microwave. Please keep the kitchen area clean. Do not leave dirty dishes in the sink. The microwave, refrigerator and kitchen are cleaned monthly. For any supplies that you need, please contact Mary Kate Noonan.

Each student will receive a hard key to access the METALS Annex. Keys will be distributed during the Orientation. You are NOT allowed to copy or share your key with others. If you lose your key, please report it to Mary Kate Noonan. You are required to return your key at the end of your program to Mary Kate Noonan.

**Department Office/Building Security, Repairs and Services:** Email [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu) for reporting damages, needed repairs, and/or security concerns. For emergencies, please call the University Police at 412-268-2323.

### **Departmental/College Graduate Student Organizations/Advisory Committee/Graduate Representatives:**

There are over 400 student groups at CMU. You can sign up for any of these groups via [TartanConnect](#). One of the groups is the Graduate Student Assembly (GSA), which is composed of more than 100 graduate student representatives. Any graduate student is welcome to join a GSA committee; it is a great opportunity to ensure your voice is heard regarding your experiences as a graduate student.

**Department Approach to Press and Media Relations:** If you are invited for an interview by a media representative and would like to consult with our in-house team, contact Aaron Aupperlee, CMU School of Computer Science Senior Director of Media Relations ([aaupperlee@cmu.edu](mailto:aaupperlee@cmu.edu); 412-268-9068). For HCII media tracking purposes, please notify Karen Harlan, HCII Communications Specialist ([kharlan@andrew.cmu.edu](mailto:kharlan@andrew.cmu.edu)) of any pieces that mention you and your work.



**Department/College/University Brands and Logos:** For guidelines on the use of department, college, or university brands and logos, please contact Karen Harlan, HCII Communications Specialist ([kharlan@andrew.cmu.edu](mailto:kharlan@andrew.cmu.edu)).

**Graduate Student Reimbursement Policy:** The university has detailed policies regarding the purchase of goods, services, equipment, etc., utilizing general ledger accounts, restricted accounts, or grants. This includes reimbursement policies and tax-exempt considerations.

All purchases made using university funds must receive prior approval from the Managing Director or the Program Director via email to [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu). In general, all purchases excluding travel should be made by the Carnegie Mellon METALS program committee. In the rare event that a student is authorized to make a purchase, itemized receipts must show proof of purchase and will be required for reimbursement.

As CMU is tax-exempt, sales tax will not be reimbursed for business expenses, except for travel-related expenses (hotel, airfare, meals). Miscellaneous items like replacement computer peripherals or presentation materials purchased during travel should be obtained through an approved department buyer to avoid unnecessary tax expenses. To avoid paying tax, a staff member should purchase the item for you with a CMU Purchase Credit Card.

Please promptly submit itemized receipts and packing slips for all purchases for reconciliation and documentation. Credit card receipts are not acceptable receipts.

Exceptions to this policy:

- **Capstone Expenses:** Pre-approved legitimate business expenses can be reimbursed by the department. Mary Kate Noonan will help you claim reimbursement provided you have the following:
  - Itemized receipt indicating items purchased and proof of payment.
  - Business purpose for purchasing items.
  - Account to be charged for reimbursement.
  - Approval by the Managing Director or the Program Director and subsequent signature for reimbursement.
  - Signed expense report.
- **Travel Expenses**

Pre-approved legitimate travel expenses can be reimbursed by the department. Mary Kate Noonan will help you claim reimbursement once you provide the following:

  - All receipts must be itemized and specify the items purchased.

- Hotel receipts must show a zero balance with proof of payment and your name on them.
- Students may only reserve lodging through Airbnb with prior approval from the Managing Director or Program Director.
- Receipts for meals must be collected, you cannot claim per diem meals.
- Alcoholic beverages will not be reimbursed.
- Personal car mileage is calculated at the current IRS rate per mile; mileage covers gas, but not tolls.
- Business purpose for travel.
- Account to be charged for reimbursement.
- Approval by the Managing Director or the Program Director and subsequent signature for reimbursement.
- Signed travel expense report.

## **SECTION 6: Advising**

### **6.1: Role of an Advisor and Advisor Assignments**

Each student will have a faculty mentor and two academic advisors, listed in SIO, who work together as a team to best support their advisees. Faculty mentors provide scholarly support. The academic advisors are students' primary support in navigating their academic program, handling crucial compliance-related advising tasks such as tracking degree progress, certifying graduation, and completing enrollment and university-related paperwork. Program Director Ken Koedinger provides overarching leadership and direction for the program. Appointments with Ken Koedinger can be arranged through Mary Kate Noonan.

### **6.2: Advisor/Advisee Collaboration**

The advisor/advisee relationship is crucial for student success. Regular meetings are encouraged to discuss academic progress, career goals, and any challenges faced. Advisors provide guidance, support, and resources to help students achieve their goals. Students are encouraged to proactively engage with their advisors to maximize the benefits of this collaboration.

We expect there to be a professional relationship between graduate students and their advisors as well as other faculty. We refer you to the Sexual Harassment policy at <https://www.cmu.edu/policies/administrative-and-governance/sexual-misconduct/definitions.html#sex-based-harassment>.

## 6.3: Review/Redress of Academic Conflicts

All students at Carnegie Mellon are expected to familiarize themselves with the university policies and guidelines. Students can refer to the following resources to understand community expectations and receive support and guidance on various aspects of university life and conduct:

- [Academic Integrity](#): The policy includes the university's expectations around academic integrity and provides definitions of cheating, plagiarism, and unauthorized assistance.
- [Academic Disciplinary Actions](#): The actions are outcomes imposed when any student violates the University Policy on Academic Integrity. The procedures also outline the appeal process.
- [Graduate Student Appeal and Grievance Procedures](#): Graduate students are expected to seek informal resolution of all concerns within the METALS program before invoking formal processes. When an informal resolution cannot be reached, students who seek further review of the matter should follow the formal graduate student appeal and grievance procedures.

When instructors suspect an academic integrity violation, they may consult with the [Office of Community Responsibility](#) for assistance in handling the case and determining sanctions if the student is found responsible. According to university policy, students who violate academic integrity are not allowed to drop the course to avoid penalties; any attempt to do so will result in reenrollment.

Students who have committed an academic integrity violation are placed on disciplinary probation within the department for the remainder of their academic program. While on probation, students are allowed to continue with the program but must meet with their academic advisor. If students violate academic integrity a second time, the METALS program will recommend to the Academic Review Board that they be dismissed from the program.

## SECTION 7: Master's Degree Requirements

### 7.1: Residency Requirements

All METALS students, both domestic and international students, are required to attend classes in person on the CMU Pittsburgh campus. There is no remote option for the program.

## 7.2: Registration Process

Students have full responsibility to register for their courses. Students are encouraged to plan their course schedule and meet with their advisors prior to registration. All master's students will be assigned a registration start time by the course registration system, which can be found in SIO under your "Semester Schedule => Registration" tab. You should adhere to the academic calendar and register for classes as early as possible, as classes fill up quickly. The detailed process for registration can be found at <https://www.cmu.edu/hub/registrar/registration/index.html>.

## 7.3: Required Units for Degree Attainment

All students are required to take six core courses (totaling 108 units) and five electives (totaling 45 – 60 units). A course with 9 to 12 units will count as one elective; two 6-unit mini-courses will count as one elective.

## 7.4: Core Courses

Core requirements consist of two prerequisite requirements and six core courses.

### **Prerequisite Requirements: Two Place-out Courses**

Carnegie Mellon's METALS program is a rigorous interdisciplinary program. Matriculating students are expected to have a basic knowledge of statistics and programming. Every student arrives here with their own set of talents and skills, and we would like to reward you for your prior hard work by giving you the opportunity to "place out" of these required courses.

**Knowledge of Statistics:** Basic concepts, logic, and issues involved in statistical reasoning, such as probability theory, methods for statistical inference, introductory research methods, exploratory data analysis, and the use of some statistical tests in the regression analysis and the contingency table families. Equivalent courses at CMU are 36-202 Methods for Statistics & Data Science and 36-220 Engineering Statistics and Quality Control.

**Knowledge of Programming:** Proficiency in a programming language such as JavaScript, Python, Java, or C, programming methodology and style, problem analysis, program structure, algorithm analysis, data abstraction, and dynamic data. Normally met through an introductory course in programming that requires the student to write programs of approximately 300 lines of code from scratch. An equivalent course at CMU is 15-100 Introductory/Intermediate Programming.

The Admission Committee may determine at the time of admission that some incoming students must successfully complete one or more of the place-out courses by earning 80% or better prior to matriculation. Failure to successfully complete these courses prior to matriculation may result in the student being removed from the program.

We advise students to take advantage of this opportunity to fulfill these requirements, as it will give you more time to take electives, independent studies, or other courses that you may find of interest. If you choose not to take advantage of these place-out opportunities, you may not be able to complete the program on time.

## Core Courses

All students are required to take the following [six core courses](#).

- 05-823 E-Learning Design Principles and Methods (12-unit fall course)
- 05-738 Evidence-Based Educational Design (12-unit fall course)
- 05-840 Tools for Online Learning (12-unit spring course)
- 05-660\* Interaction Design Fundamentals (12-unit fall or spring course)
- 05-681 METALS Project I (12-unit spring course)
- 05-682 METALS Project II (48-unit summer course)

METALS students must pass the courses 05-823, 05-738, and 05-660 with a grade of B- or better before taking METALS Project I (Capstone Project 1). Students who do not successfully pass these courses will not be permitted to take the 05-681.

\*05660 Interaction Design Fundamentals may be replaced with a more advanced design elective if the student indicates mastery of design skills. The request must be submitted to [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu) in early spring prior to their matriculation to seek approval from the HCII.

## 7.5: Electives

Students may use the [five elective courses](#) to design their program according to their individual interests, background, and goals. You must choose a minimum of three electives from at least two of the following three distributional areas:

- Technology
- Methods & Design
- Learning Sciences Theory & Instructional Design

As of this printing, the currently acceptable elective courses are listed below. For the most up-to-date list, please see the METALS website at <https://metals.hcii.cmu.edu/curriculum/>.

## Technology

- Accessibility (05-899 B S22 & S21)
- AI Engineering (11-695) or Machine Learning in Production (17-645)
- Advanced Natural Language Processing (11-711)
- Applied Data Science (16-791)
- Applied Machine Learning ([05-834](#))
- Cloud Computing ([15-619](#))
- Data Science for Product Managers (05-898)\*
- Data Visualization (05-619)
- Design Center: Design for Digital Systems (51-828)
- Design Educational Games ([05-818](#))
- Foundations of Computational Data Science (11-637)
- Gadgets, Sensors and Activity Recognition in HCI (05-833)
- HCI for Product Managers (05-898)\*
- Human AI Interaction (05-618)
- Human Language for AI (11-624)
- Interaction Techniques (05-640)
- Interactive Data Science ([05-839](#))
- Introduction to Deep Learning (11-685)
- Introduction to Machine Learning ([10-601](#), [10-701](#))
- Machine Learning for Text & Graph-based Mining (11-641) or Machine Learning with Graphs (11-741)
- Multimodal Machine Learning (11-777)
- Natural Language Processing (11-611)
- Personalized Online Learning ([05-832](#))
- Practical Data Science (15-688)
- Principles of Software Construction (17-514)
- Programming Usable Interfaces (PUI) (05-630)\*\*

## Methods & Design

- Advanced Interaction Design (05-661)
- Agile Methods (95-874)\*
- Applied Research Methods (05-816)
- Computer Science Perspectives in HCI ([05-773](#))\*
- Data Science for Psychology & Neuroscience (85-732)
- Design of Artificial Intelligence Products (05-617)
- Design Educational Games ([05-818](#))
- Designing Experiences for Learning (51-886)
- Designing Human Centered Software ([05-891](#))
- Digital Ethnography (49-717)\*
- Experimental Design for Behavioral and Social Sciences (36-749)
- Human Factors ([05-813](#))
- IDeATe: Learning in Museums (05-602)
- Learning Media Design (05-691)
- Personalized Online Learning ([05-832](#))
- Prototyping Algorithmic Experiences (05-685)
- Research Methods for Design ([51-744](#))
- Service Design ([05-652](#))
- Social Perspectives in HCI ([05-772](#))\*
- Transformational Game Design Studio (05-899)
- User Centered Research & Evaluation (UCRE) (05-610)\*\*

## General Electives

Any two additional courses listed above **or** choose no more than two of:

- Data Analytics with Tableau (94-819)\*
- Decision Making Under Uncertainty (95-760)\*

<ul style="list-style-type: none"> <li>• Prototyping Algorithmic Experiences (05-685)</li> <li>• Python for Data Science (11-603)</li> <li>• Role of Technology in Learning in the 21st Century (<a href="#">05-838</a>)</li> <li>• Software Structures for User Interfaces (05-631)</li> <li>• Web Application Development (<a href="#">17-637</a>)</li> </ul> <p><b>Learning Sciences Theory &amp; Instructional Design</b></p> <ul style="list-style-type: none"> <li>• Applications of Cognitive Science (85-795, <a href="#">05-795</a>)</li> <li>• Cognitive Development (85-723)</li> <li>• Learning Analytics and Educational Data Science (05-899 B F23)</li> <li>• Persuasive Design (05-615)</li> <li>• Role of Technology in Learning in the 21st Century (<a href="#">05-838</a>)</li> </ul>	<ul style="list-style-type: none"> <li>• Design Center: Human Experience in Design (51-673)</li> <li>• Design Center: Methodology of Visualization (51-831)</li> <li>• Designing for Service (51-785)</li> <li>• Digital Service Innovation (05-670)</li> <li>• Evidence-Based Management (94-814)*</li> <li>• Fairness, Accountability, Transparency, and Ethics in Sociotechnical Systems (05899 A F22 &amp; F23)</li> <li>• Independent Study (05-680)</li> <li>• Language and Statistics (11-761)</li> <li>• Machine Learning with Graphs (11-741)</li> <li>• Product Management Essentials (17-692)*</li> <li>• Quality Assurance (17-623)*</li> <li>• Social Web (<a href="#">05-820</a>)</li> <li>• Topics in Second Language Acquisition (82-888)</li> <li>• Topics on Ethics for AI (80-836)</li> <li>• Other possibilities if approved by METALS Director. To request approval, <a href="#">click here</a>.</li> </ul>
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\*mini course – counts as half of one elective

\*\* Available in the Spring semester for METALS students. In the Fall semester, PUI and UCRE are both reserved for MHCI students. Others may take it if and only if space is available and with the instructor's permission. Non-MHCI students who register for this course in the Fall without the instructor's approval will be removed without warning.

Electives not pre-approved must be individually approved by the program director on a case-by-case basis to align with each student's program goals and future endeavors. Cross-listed electives count only in one distributional area. Independent studies typically do not fulfill distributional requirements unless pre-approved by the program director. It is your responsibility to ensure that you fulfill the distributional requirements.

Each elective course must be equivalent to a full-semester course (9 or 12 units); two mini (half-semester) courses (6 units each) count as one elective. Elective courses must differ

from any taken as part of the METALS core, and they cannot have counted toward a degree previously awarded by CMU.

### **Sample Plans of Study**

**Three semesters:** The METALS degree is designed to be earned in three semesters over the course of 12 months, from August to August, for students with significant previous employment experience. International students must complete a minimum of 36 units per semester. Below is a sample full-time schedule for 12 months.

<p><b>Fall</b></p> <ul style="list-style-type: none"> <li>• 05-823 E-Learning Design Principles and Methods</li> <li>• 05-738 Evidence-Based Educational Design</li> <li>• 05-660 Interaction Design Fundamentals</li> <li>• Elective 1</li> <li>• Elective 2</li> </ul>	<p><b>Spring</b></p> <ul style="list-style-type: none"> <li>• 05-681 METALS Project I</li> <li>• 05-840 Tools for Online Learning</li> <li>• Elective 3</li> <li>• Elective 4</li> <li>• Elective 5</li> </ul>	<p><b>Summer</b></p> <ul style="list-style-type: none"> <li>• 05-682 METALS Project II</li> </ul>
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**Four semesters:** The METALS degree may also be earned in four semesters by those seeking a less intense program experience. International students must complete a minimum of 36 units per semester. The following is a sample full-time plan of study that considers required course sequences.

<p><b>1<sup>st</sup> Fall Semester</b></p> <ul style="list-style-type: none"> <li>• 05-823 E-Learning Design Principles and Methods</li> <li>• 05-738 Evidence-Based Educational Design</li> <li>• 05-660 Interaction Design Fundamentals</li> </ul>	<p><b>1<sup>st</sup> Spring Semester</b></p> <ul style="list-style-type: none"> <li>• 05-681 METALS Project I</li> <li>• 05-840 Tools for Online Learning</li> <li>• Elective 1</li> <li>• Elective 2</li> </ul>	<p><b>1<sup>st</sup> Summer Semester</b></p> <ul style="list-style-type: none"> <li>• 05-682 METALS Project II</li> </ul>
<p><b>2<sup>nd</sup> Fall Semester</b></p> <ul style="list-style-type: none"> <li>• Elective 3</li> <li>• Elective 4</li> </ul>		



• Elective 5		
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## Part-time Study

Students have the option to complete the program on a part-time basis. Due to the F-1/J-1 visa requirement that students be enrolled full time, this option is only open to U.S. citizens and permanent residents. By choosing this option, you can tailor the completion of coursework to suit your needs. You will work with an advisor to set up an appropriate plan of study. Ideally, students should aim to complete the degree within two years by taking two courses per semester, including summers. During the summer METALS Project II course, students are expected to be enrolled full-time and should make appropriate arrangements with their employers for leave. Part-time students should also note that all HCI core courses are held during the day, so completing the degree as a night student is not possible. Additionally, we cannot guarantee that electives will be available during the summer.

The following is a sample part-time plan of study that keeps in mind required course sequences.

<b>1<sup>st</sup> Fall Semester</b> <ul style="list-style-type: none"> <li>• 05-823 E-Learning Design Principles and Methods</li> <li>• 05-738 Evidence-Based Educational Design</li> </ul>	<b>1<sup>st</sup> Spring Semester</b> <ul style="list-style-type: none"> <li>• Elective 1</li> <li>• Elective 2</li> </ul>	<b>1<sup>st</sup> Summer Semester</b> <ul style="list-style-type: none"> <li>• Elective 3</li> <li>• Elective 4</li> </ul>
<b>2<sup>nd</sup> Fall Semester</b> <ul style="list-style-type: none"> <li>• 05-660 Interaction Design Fundamentals</li> <li>• 05-840 Tools for Online Learning</li> </ul>	<b>2<sup>nd</sup> Spring Semester</b> <ul style="list-style-type: none"> <li>• 05-681 METALS Project I</li> <li>• Elective 5</li> </ul>	<b>2<sup>nd</sup> Summer Semester</b> <ul style="list-style-type: none"> <li>• 05-682 METALS Project II</li> </ul>

## 7.6: Department Policy on Double Counting Courses

There are no double counting courses. Courses taken at Carnegie Mellon in the 12 months prior to matriculating can satisfy the degree requirements if they are not used to satisfy another degree.

## 7.7: Department Policy for Courses Outside the Department/College

Students can take pre-approved elective courses outside the department/college listed at <https://metals.hcii.cmu.edu/curriculum/>.

## 7.8: Course Exemptions

Not applicable for this program.

## 7.9: Protocol for Evaluation of Transfer Credit

This program does not accept transfer credit except transfer credit for courses taken through the [Pittsburgh Council on Higher Education \(PCHE\)](#) cross-registration program with a B- or above.

## 7.10: Teaching Requirements/Opportunities

There is no teaching requirement for the program. However, some teaching assistant (TA) opportunities may be available in rare instances. [Language assessment](#) is required for all non-native English-speaking students who want to work as TAs at Carnegie Mellon, in accordance with CMU policy and Pennsylvania law.

## 7.11: Research Requirements/Opportunities

There is no research requirement for the program. However, research opportunities are available for credit (05-680 Independent Study) or pay. More details are available at <https://www.hcii.cmu.edu/academics/independent-study>.

## 7.12: Internship/Co-op Requirements and Opportunities

Not applicable for this program.

## 7.13: Thesis Requirement

Not applicable for this program.

## 7.14: Requirements for Application/Consideration for Entry into PhD Program

Not applicable for this program.

# SECTION 8: Department Policies & Protocols

## 8.1: Petition Procedures

Petition for changing from the 12-month program to the 16-month program or vice-versa or taking a course at a PCHE school to count towards your METALS degree should be sent to [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu). Students will be notified of the outcome of their petition via an email from their academic advisor after the graduate program committee has made a decision.

## 8.2: Department Policy for Withdrawing from a Course

Students taking undergraduate and graduate level courses must follow the [procedures](#) and [deadlines](#) on the university academic calendar for course changes (add, drop, withdrawal and & voucher election).

## 8.3: Requirements for Those Without a Bachelor's Degree in Discipline

The program does not accept students without a bachelor's degree.

## 8.4: New Policies / "Grandfather" Policy

Any new policies in the 2024–2025 Handbook will only affect students matriculating in Fall 2024 or later.

## 8.5: Time Away from Academic Responsibilities

Students may temporarily interrupt their studies at Carnegie Mellon for emergency or non-emergency absences.

### **Emergency Absences**

Emergencies happen. To best assist you, please contact campus police at 412-268-2323,

Carey Zehnder, SCS HUB liaison, at 412-268-8186, or the Office of the Dean of Student Affairs at 412-268-2075.

If you need to take emergency absences from your classes and projects, please notify your academic advisors and course instructors. Students requiring [academic accommodations](#) should apply through [Disability Resources](#).

### **Non-emergency Absences**

For non-emergencies, HCII views attendance as an individual student responsibility. Students are expected to attend classes, tasks, team meetings, presentations, seminars, and so forth. For meetings where the student's absence could hinder the group's performance, such as task meetings, team meetings, and group presentations, it is the student's responsibility to provide satisfactory evidence to the METALS Director to substantiate the reason for the absence.

Among the reasons absences that may be considered excused by the program are the following:

- Personal or medical issues
- A professional opportunity
- Family commitments

### **University Breaks**

Refer to this policy <https://www.cmu.edu/hub/registrar/leaves-and-withdrawals/>

Graduate students should not assume that their time-off follows the academic calendar of courses. Many are coming from an undergraduate environment where their university employment followed their course schedule. For many graduate degree programs, there is an expectation that graduate students continue research during academic breaks and time away from campus which may or may not be negotiated with the students. If there are requirements for student time beyond a typical weekday, this should be specified.

Students should expect to remain on campus between the Spring and Summer semesters to continue work on their capstone projects.

However, University Holidays are also student holidays, and students need to consult their faculty about coverage if they have challenges with taking time off during University Holidays.

## **8.6: Other Policies and Protocols / Inclusion of Any Variations to University Policies and Protocols**

This program follows the University policies and protocols outlined in the [Master's Student Statute of Limitations](#), except for the upper limit on the maximum length of time allowable for master's degree completion and certification. METALS requires that students who have matriculated into the program complete all requirements for the master's degree within a maximum of four years from the original matriculation as a master's student, or less.

## **SECTION 9: Grading & Evaluation**

### **9.1: Grading Scale/System**

For students who matriculate into the program, the university grading policy is described at <https://www.cmu.edu/policies/student-and-student-life/grading.html>.

Students earn a letter grade (A+, A, A-, B+, B, B-, C+, C, C-, D+, D, or R) for each course taken. To count toward graduate degree requirements, coursework must be at graduate level (XX-600 and higher) and receive a grade of B- or better. Core courses not meeting this requirement may be retaken. Elective courses not meeting this requirement may also be retaken or substituted with another elective.

### **9.2: Department Policy on Grades for Retaking a Course**

Students who retake a course will be subject to the same grading policy as for their initial attempt. To count toward graduate degree requirements, the retaken coursework must be at the graduate level (XX-600 and higher) and receive a grade of B- or better.

### **9.3: Department Policy on Pass/Fail, Satisfactory/Unsatisfactory**

Courses with Pass/Fail or Satisfactory/Unsatisfactory grades do not count toward the METALS program requirements.

### **9.4: Department Policy for Incompletes**

Students are expected to complete a course during the same academic semester in which it is taken. However, an instructor may assign an incomplete grade (I) if a student is unable to finish the coursework due to circumstances beyond their control. Typically, incomplete grades will only be considered if 75% or more of the coursework has been completed to date and has been of passing quality per [university grading policy](#). Students should establish a mutually agreed-upon plan for the completion of the remaining coursework

with the course instructor and send a copy of the [Incomplete Grade Agreement](#) to their academic advisors.

Students must complete the coursework by the mutually agreed-upon plan and date, which must be before the end of the following semester. Failure to do so will result in the student earning the default grade (if specified) or an R (failing grade) if no default grade is specified.

## 9.5: Independent Study

Independent Study (course 05-680) provides students with an opportunity for intensive study of a subject that is either unavailable or insufficiently covered in regular coursework. Independent studies are not intended to substitute for existing courses but rather to offer specialized educational and research experience. Independent studies cannot satisfy distributional electives unless pre-approved by the Program Director. Moreover, METALS students may count up to a maximum of 24 units or two courses of Independent Study towards their degrees, whichever is less.

Students who are interested in independent study, which encompass a variety of HCI-related subject areas, ranging from human-centered AI, computational fabrication, data visualization, design research, educational technology research, IoT, interaction design, privacy and security, to virtual reality, and more, should follow the instructions at <https://hcii.cmu.edu/academics/independent-study> and submit the completed METALS [Independent Study Proposal Form \(PDF\)](#) to [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu) for approval. Once approved, a staff academic advisor will add it to their course registration.

Please note that learning objectives are not goals, they describe what you will be capable of doing when the project is complete. Milestones should have deliverables and be specified on a weekly basis. Incomplete or incorrect independent study forms will be returned to you.

**Who can supervise?** Any METALS faculty member is eligible to serve as the supervisor of an Independent Study course or project. The student must provide a brief prospectus of the project to the faculty supervisor as a basis for an agreement on the objectives of the course. Non-METALS faculty may supervise an Independent Study course or project if approved by the Program Director.

## 9.6: GPA Requirements and QPA Requirements for Graduation

The METALS program typically requires 168 units. However, it may be possible to graduate with a minimum of 150 units in the unlikely event that students are able to take five

graduate electives that satisfy the degree requirements and are less than the usual 12 units for each elective.

To graduate, students need a QPA (Quality Point Average) of 3.0 or better. All grades contribute to the cumulative QPA recorded on the transcript. However, only the top six core courses and five electives that fulfill degree requirements factor into the required 3.0 program QPA.

## 9.7: Satisfactory Academic Standing

Students who's cumulative QPA falls to or below 2.6 at the end of a semester will be dismissed from the program. Exceptions may be made for medical emergencies.

Students who's cumulative QPA falls below 3.0 at the end of a semester will be placed on academic probation. They will have one semester to raise their cumulative QPA to 3.0 or higher. Failure to do so may result in removal from the program at the discretion of the curriculum committee. Exceptions may be made for documented medical emergencies.

**Minimum QPA and Academic Probation:** Students must maintain a cumulative QPA of 3.0 to remain in good standing with the program. Should a student's overall QPA drop below 3.0 during any given semester, he/she will be placed on *academic probation* for the following semester. In probation cases, the student will be required to:

- enroll in courses as advised by the academic advisor,
- improve their grades to at least a cumulative 3.0 QPA in the following semester, and
- meet any other goal set by the advisor during that period (e.g. fulfilling a core course requirement).

Other than academic reasons, students may be suspended for disciplinary or administrative reasons. Additional information is available at the following link: <http://www.cmu.edu/policies/student-and-student-life/suspension-required-withdrawal-policy.html>.

Students can appeal any or all of these decisions by following the [Summary of Graduate Student Appeal and Grievance Procedures](#).

In order to return from a suspension, a student must have the following approval:

- Academic Suspension — department head
- Disciplinary Suspension — dean of student affairs
- Administrative Suspension — vice president for student affairs or designate

## 9.8: Regular Reviews and Evaluations by Department

The METALS program conducts an academic progress review at the conclusion of each semester to monitor individual students' progress toward graduation, including the fulfillment of curricular requirements, course grades, and [academic integrity](#). If a student's effort falls below the acceptable level of academic performance and/or fails to meet the standards and policies established by Carnegie Mellon University, the student may be dismissed from the program. Notice will be provided via email and delivered by mail to the student's local address on record.

# SECTION 10: Funding & Financial Support

## 10.1: Statement of Department Financial Support

The department does not provide any financial support other than merit scholarships and conference funding.

We encourage students to expand their academic and professional horizons by attending conferences related to educational technologies and learning sciences. To support this growth, we offer funding for one conference per student to cover registration, travel, and lodging costs.

To request funding for presenting your scholarly work or attending a learning science conference, email [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu) prior to your conference with the following details:

- Conference details: Name, location, and dates, and conference website.
- Paper details: Title, authors, abstract of the paper, confirmation of acceptance and presentation type (oral, poster, workshop, etc.).
- Requested funding details: Total estimated expenses with a breakdown of registration fee, travel (air or ground), and reasonable accommodation and meals. Accommodation expenses cannot exceed the rates recommended by the [U.S. General Services Administration](#). Students cannot claim per diem meals or alcoholic drinks.

Please obtain itemized receipts for all expenses. CMU will not reimburse expenses based on credit card receipts without itemized invoices.



## 10.2: Stipend

Not applicable for this program, unless you have been accepted into the [CMU Rales Fellows](#) program.

## 10.3: Department Fees

There are no extra fees in the METALS program, other than the mandatory fees for all CMU students. However, it is your responsibility to pay for textbooks and business case fees that are associated with the courses that you have enrolled in.

## 10.4: Travel/Conference and Research Funding

- **Conference funding:** The METALS program funds one conference per student. Detailed information is listed in section 10.1 of this handbook.
- **Research funding:** The [Graduate small project help \(GuSH\) Research Grant Program](#) provides small grants to graduate students to support their research related to their programs of study. These grants are funded by the [Graduate Student Assembly](#) and the [Office of the Provost](#) and managed by the [Office of Graduate and Postdoctoral Affairs](#).

## 10.5: Funding Payment Schedule

- **Merit scholarships** are made available at the start of each semester in accordance with the terms in the offer of admission.
- **Conference funding** will be reimbursed as outlined in section 10.1 of this handbook.

## 10.6: Additional Sources of Internal & External Financial Support

International students may work up to 20 hours a week on campus in one of the following roles: grader, teaching assistant, lecturer, research assistant, or office support staff. Internships and summer employment are not part of this program. Students are expected to work on their capstone project over the summer.

## 10.7: Availability of Summer Employment

Internships and summer employment are not part of this program. Students are expected to work on their capstone project full time (40 hours/week) over the summer in Pittsburgh.

## 10.8: Department Policy on Outside Employment

Due to the intensive nature of the METALS program and visa restrictions, outside employment is strongly discouraged for all full-time students. Since an internship is not required for the METALS program. Curricular Practical Training (CPT) employment is not allowed during the first and last semesters of the program for all international students.

Before accepting an outside employment, international students with F-1 or J-1 visas must contact the [Office of International Education](#) to discuss their employment eligibility and get prior approval from the Program Director.

## 10.9: Requirements for the Continuation of Funding (if applicable)

To continue receiving METALS merit scholarships, students must remain in good standing with a cumulative GPA of 3.0 or above.

## 10.10: Procedure for Written Notification of Change in Financial Support

No written notification will be sent if you lose your MERIT scholarship due to failing to remain in good standing, as outlined in section 10.9.

# SECTION 11: ADDITIONAL DEPARTMENTAL INFORMATION

METALS students graduating during the summer semester have the option to walk in the May Commencement of the same year or the following year. Please note that you can participate in the official graduation ceremony only once. More information will be sent in March of your graduation year.

If you need departmental information that is not included in this handbook, please email [metals-help@lists.andrew.cmu.edu](mailto:metals-help@lists.andrew.cmu.edu).