Computer Science Program – LSA

Fall 2012 – Winter 2023 Guide
Applies to students who enter the College of LSA <u>during or after Fall 2012</u>.

Thank you for your interest in the UM Computer Science – LSA program!

The fast rate of innovation in computer technology has created many new, exciting opportunities for students with Computer Science undergraduate degrees. Employment opportunities include positions in artificial intelligence, machine learning, medicine, security, business management, consulting, software engineering, game design, computer systems analysis, data communications administration, robotics, hardware development, and many others. Major employers of recent graduates include many prominent U.S. corporations and research laboratories, such as Amazon, Apple, AT&T, Cisco, Deutsche Bank, Electronic Arts (EA), Facebook, Google, IBM, Intel, JPMorgan Chase, Microsoft, NASA, and PricewaterhouseCoopers (to name a few). Some students also join (or even found) start-ups! In addition, an undergraduate degree in CS provides opportunities for masters, doctoral, and professional studies in various fields.

Computer science is an exceptional field. Computers have been around for only 70 years while most other scientific disciplines have been around for centuries. Progress in computer science has been extraordinarily rapid during this period, and computers have had a profound impact on society. (Can you envision life without cell phones, Wi-Fi, and the Internet?) Computer science research has provided much of the intellectual foundation and creative energy that has fueled that transformation, and it continues to be an extremely exciting field.

Getting Advice and Information

Students considering a CS major should schedule an appointment with a CS-LSA department advisor. While general LSA advisors can help point you in the right direction, you should seek the details of declaration requirements and course planning from a CS-LSA department advisor for the most up-to-date information. Declared students and future CS students should schedule an appointment at least once per term, even if you know what you want to take. Careful planning and frequent review of requirements will help ensure you will have no problems at declaration or graduation time. The appointment scheduler is at cse.engin.umich.edu/academics/for-current-students/advising/. This page also hosts the most recent program and policy information, and should be your first resource for enrollment and requirement questions.

- The CS-LSA department advisors do not provide any advice or guidance on meeting LSA overall degree requirements. Please review these periodically with an LSA Advisor. Visit https://lsa.umich.edu/advising to make an appointment with the LSA Newnan Advising Center. All questions about the CS program requirements should be directed to the CS-LSA advisors here in the CSE Undergraduate Advising Office.
- When you declare, you will be added automatically to a CS-LSA email list. Announcements are sent weekly and include information about courses and academic matters, as well as extracurricular opportunities. Declared CS-LSA majors also have access to the Engineering Career Resource Center, ECRC, for finding internships, co-ops, and jobs.
- Because declaring the CS-LSA major will impact an LSA student's U-M tuition, some students avoid declaring as long as possible, and at times purposely avoid the CS-LSA advisors. This is a bad idea! Some students end up making mistakes in pursuing requirements that cost them an extra term (or more), and in some cases, tuition has been retroactively charged. Always seek advice early and often to use your time, energy, and tuition most expediently.

Further Questions About the CS-LSA Major?
EECS-CSE Undergraduate Advising Office Staff (ugadmin@eecs.umich.edu)
Chief Program Advisor (cslsaadvisor@umich.edu)
2808 Beyster Bldg. (North Campus) | Phone: (734) 763-6563

Program Information

Pre-Declaration Requirements
CS-LSA major declaration requires all of the following:

1. Completion of four pre-declaration requirements, all with a grade of C or better (no Optional P/F):
    a. **Two calculus math courses**, see approved math combinations below*
    b. **EECS 203** or equivalent
    c. **EECS 280**
2. Record clear of academic standing issues (e.g., students under Probation, Special Probation, Suspension, etc. are not eligible for declaration).

*Pre-approved math combinations:
- (MATH 115, or equivalent, including MATH 120 AP credit) + (MATH 116, or equivalent, including MATH 121 AP credit)
- (MATH 115, or equivalent) + MATH 215
- (MATH 116, or equivalent) + one of the following: (MATH 175, MATH 214, MATH 215, MATH 216, MATH 217, MATH 295, MATH 296, MATH 412, MATH 419, MATH 425, MATH 451, or MATH 555)

Please note:
- Please consult an advisor with questions regarding math combinations not listed above.
- Math departmental credit (MATH 101X, etc.) and/or "placing out" of a particular course in the Math department cannot be used for CS-LSA declaration. Your transcript must show posted AP credit, or actual math courses.
- Each of these requirements may be attempted twice; only the final grade will be considered in each case. Requirements where a B- or higher has already been achieved may not be attempted again.
- MATH 465 or 565 can satisfy the EECS 203 requirement, but require significantly more mathematical background than EECS 203. Seek advising from the Math department before choosing these.
- **The declaration requirements can be complex to interpret. Meeting with a CS advisor early is essential.**

CS Core Courses
1. *Computer Science (all three of the following):* EECS 281, EECS 370, and EECS 376.
2. *Probability & Statistics (one of the following):* STATS 250, STATS 206/DATASCI 101, STATS 280, STATS 412, STATS 426, EECS 301, EECS 401, ECON 451, IOE 265, or TO 301. Students with credit from Statistics AP exams should pursue STATS 280 for this requirement.

Upper Level CS Technical Electives (ULCS)
16 credits must be in approved Upper Level CS (ULCS) Electives, which are challenging and substantial courses covering a variety of topics in computing. **Students must be declared CS-LSA before they can register for ULCS courses.** ULCS electives must be selected from the following list of EECS courses. No transfer course will be granted ULCS elective credit. See pg. 9 for suggestions in selecting your ULCS with CS-LSA Tracks. Some special topics courses are designated ULCS in certain terms (see cse.engin.umich.edu/academics/course-information/special-topics-courses/).

367 Introduction to Autonomous Robotics	445 Introduction to Machine Learning
373 Design of Microprocessor Based Systems	470 Computer Architecture
388 Introduction to Computer Security	471 Applied Parallel Programming with GPUs
390 Programming Paradigms	475 Introduction to Cryptography
427 VLSI Design I	476 Data Mining
442 Computer Vision	477 Introduction to Algorithms

478 Logic Circuit Synthesis and Optimization
481 Software Engineering (taken FA17 or after)
482 Introduction to Operating Systems
483 Compiler Construction
484 Database Management Systems
485 Web Systems
486 Information Retrieval & Web Search

487 Introduction to Natural Language Processing
489 Computer Networks
490 Programming Languages
491 Introduction to Distributed Systems
492 Introduction to Artificial Intelligence
493 User Interface Development

Capstone Course

Students must take an approved EECS CS course listed below to fulfill the Capstone. A Capstone is often taken during the final year in order to take the best advantage of technical knowledge gained in all previous courses. Students considering pursuit of an Honors thesis (EECS 443) should schedule an appointment to speak with a CS-LSA advisor. Some special topics courses are designated as Capstone in certain terms (see cse.engin.umich.edu/academics/course-information/special-topics-courses/). Please see details on how to complete the Capstone requirement on an MDP project here: https://mdp.engin.umich.edu/cs-lsa/.

440 System Design of a Search Engine
441 Mobile App Development for Entrepreneurs
443 CS Honors Thesis Course
448 Applied Machine Learning for Modeling Human Behavior
449 Conversational Artificial Intelligence
467 Autonomous Robotics
470 Computer Architecture
473 Advanced Embedded Systems
480 Social Computing Systems
494 Computer Game Design and Development
495 Software for Access
497 Human-Centered Software Design & Development

SAMPLE SCHEDULE FOR COMPUTER SCIENCE – LSA									
	Credits	Term 1	T2	T3	T4	T5	T6	T7	T8
Programming Prerequisite Course (must be taken before EECS 280)									
EECS 183 Elementary Programming Concepts	**4**	**4**	-	-	-	-	-	-	-
Pre-Declaration Reqs. – must have a final letter grade posted (C or higher) to declare (16 hrs.)									
Mathematics 115 Calculus I (or MATH 120 AP)	**4**	**4**	-	-	-	-	-	-	-
Mathematics 116 Calculus II (or MATH 121 AP)	**4**	-	**4**	-	-	-	-	-	-
EECS 203 or MATH 465 or MATH 565	**4**	-	-	**4**	-	-	-	-	-
EECS 280 Programming and Introductory Data Structures	**4**	-	-	**4**	-	-	-	-	-
Program Core (16 hours)									
EECS 281 Data Structures and Algorithms	**4**	-	-	-	**4**	-	-	-	-
EECS 370 Introduction to Computer Organization	**4**	-	-	-	-	**4**	-	-	-
EECS 376 Foundations of Computer Science	**4**	-	-	-	-	-	**4**	-	-
STATS 250, STATS 206, STATS 280, STATS 412, STATS 426, EECS 301, EECS 401, IOE 265, or TO 301	**4**	-	-	-	**4**	-	-	-	-
Upper Level CS Electives (16 hours)									
Upper Level CS Technical Electives*	**16**	-	-	-	-	-	**4**	**4**	**8**
Capstone Course (4 hours)									
Approved Capstone	**4**	-	-	-	-	-	-	**4**	-
Total CS-LSA (56 hours)	*55-56*	*8*	*4*	*8*	*8*	*4*	*8*	*8*	*8*
LSA Requirements: *See an LSA Advisor in the Newnan Academic Advising Center to discuss these College requirements.*									
*ULCS: Approved Computer Science courses at the 300-level or higher; see page 2 for a list of approved courses. Students completing interdisciplinary tracks must still have at least 12 credits of ULCS. See "CS-LSA Tracks" (page9). **Note:** Credits from a course may only be used to fulfill a single CS degree requirement (no double counting).									

Major Grading & Repeat Policies
Grades of "C" or better must be achieved in all courses used to satisfy the pre-declaration and other major requirements. A grade of "C-" or below is considered a failing grade and the course must be repeated or substituted with another class.

Students are limited to attempting each of the three 200-level courses (EECS 203, EECS 280, EECS 281) at most twice. An attempt includes, but is not limited to, a notation of any letter grade ("A-F"), withdraw ("W"), Pass/Fail ("P"/" F"), Transfer ("T"), or Incomplete ("I") posted on your U-M transcript. Any attempts from WN20 through SS21 terms are not counted in this limit. If you are seeking a third (or higher) attempt in EECS 203, EECS 280, or EECS 281, please submit a petition and include the following information: why your prior attempts were unsuccessful, and concrete steps you will take and changes you will make to succeed in your potential next attempt at the course. **Please note:** an advising appointment to discuss your plan is required in addition to submitting a petition.

If you currently have an Incomplete grade due to an Honor Code violation, you may proceed with the EECS coursework via override. Please submit an override request to enroll in courses that your Incomplete grade serves as a prerequisite to. If you receive a final grade below a C after an Honor Code violation, you are required to retake the course for a C or*

higher letter grade. This retake should be completed as soon as possible, and can be taken alongside other EECS courses, even if your failed class typically serves as a prerequisite. If an override is needed, please [submit one here](#) and attach any communication about your Honor Code decision in the form.

Please note: *In order to declare CS-LSA with an Incomplete grade in a pre-declaration course due to an Honor Code violation, the UAO will need confirmation from your instructor that you will pass their course, no matter the outcome of your case. If they cannot confirm this, you will need to wait for a final resolution with a final grade of C or higher in order to declare CS-LSA. For questions about your case, please contact honorcouncil-admin@umich.edu.*

Choosing Bachelor of Arts (B.A.) and Bachelor of Science (B.S.)
The B.S. degree differs from the B.A. in requiring that 60 credits (out of the 120 total) be from the physical and natural sciences or mathematics. EECS courses, along with other core courses such as STATS 250, contribute to the 60 credits. When you declare, you can elect to pursue a Bachelor of Art or Bachelor of Science. Most CS-LSA majors will reach the 60 credit threshold for a Bachelor of Science as the 56 credits in the Sample Schedule on page 4 qualify as B.S. courses.

CS Honors Program
The Honors Program in Computer Science is open to LSA students completing the Computer Science B.S. degree program. Students can earn an Honors degree in Computer Science without having been enrolled in the LSA Honors Program in the first and second years at U-M. Students are responsible for finding a faculty mentor whose research area aligns with their interest(s) and who is willing to oversee the thesis project. A summary of requirements is below; see the CS Honors Program handout for more detailed information:
- 3.2 or higher GPA in Math 115, Math 116, EECS 203, and EECS 280
- 3.5 GPA in the CS major (see page 10)
- Must complete a CS Honors thesis course (EECS 443), write an original thesis that is evaluated and deemed worthy of honors, and give an oral presentation of the thesis
- 3.4 overall UM GPA at time of graduation

Pursuing Additional Major(s): Students pursuing CS-LSA in addition to one or more other majors must ensure they have devoted significant, independent work toward each major. To that end, students should consult with a CS-LSA department advisor to ensure compliance.

Course Planning and Prerequisites
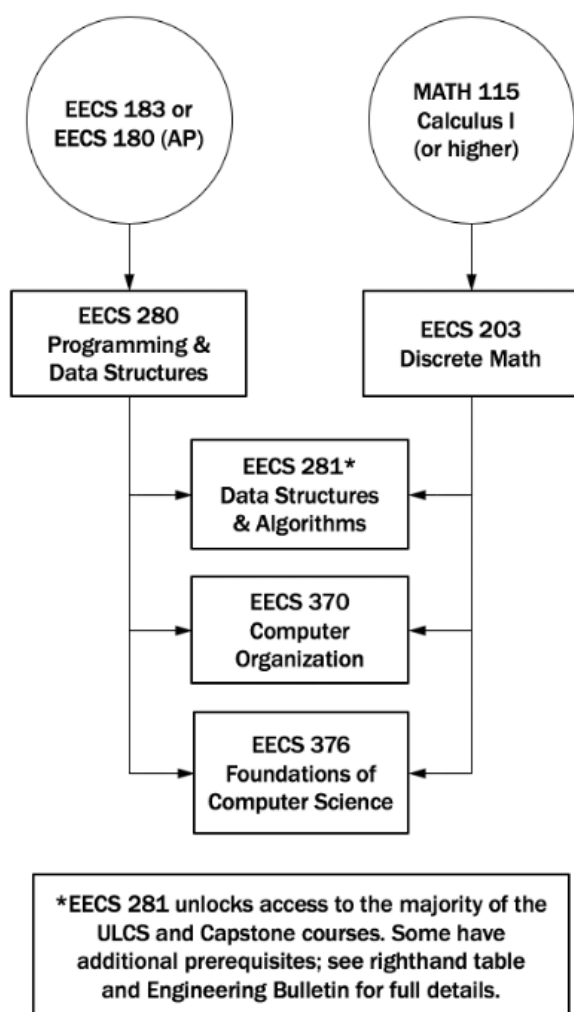
	Prerequisites				
	EECS 281	EECS 370	EECS 376	Linear Algebra	Additional requirements
EECS 367	●			●	
EECS 373		●			EECS 270
EECS 388	●	Advisory			
EECS 390	●				
EECS 427					EECS 270, 312
EECS 440	●				
EECS 441	●	●			See CoE Bulletin
EECS 442	●			●	
EECS 445	●			●	
EECS 448	●			●	
EECS 449	●				
EECS 467	●			●	EECS 367
EECS 470		●			EECS 270
EECS 471	●	●			
EECS 473	●				EECS 373
EECS 475			●		
EECS 476	●			●	
EECS 477	●		●		
EECS 478					EECS 203, 270
EECS 480	●				EECS 485 or 493
EECS 481	●				
EECS 482	●	●			
EECS 483	●	●			
EECS 484	●				
EECS 485	●				
EECS 486	●				
EECS 487	●				
EECS 489	●	●			
EECS 490	●				
EECS 491	●	●			EECS 482
EECS 492	●				
EECS 493	●				
EECS 494	●				
EECS 495	●				
EECS 497	●	●			See CoE Bulletin

Course Planning & Workload

Student feedback about workload in CS courses can be found online:
cse.engin.umich.edu/academics/course-information/workload-surveys/. Note that there is considerable variance for courses because different students find different aspects of courses challenging (writing complicated programs, understanding math concepts, etc.) Below is a summary that synthesizes workload survey data with other course information to estimate workload in each course:

- Extremely heavy workload: 467, 470, 473, 482, 494
- Heavy workload: 281, 373, 445, 483, 489, 491
- Moderate workload: 203, 280, 285, 370, 376, 388, 442, 475, 477, 478, 481, 484, 485, 490, 492
- Light workload: 183, 441, 486, 493, 496, 497

CS courses can be more demanding relative to many courses at the University, so we advise students to avoid overloading themselves. For most CS students, a load of 2 CS courses in the same semester is normal, but that can vary based on the combination of CS courses chosen (e.g., a CS course with an extremely heavy load should only be paired with one with a moderate load or less), as well as what non-CS courses are being taken at the same time. We encourage students to talk with advisors and peer advisors if they have questions about the course load they are considering.

Transfer Credit & General Advice

Transfer Credit
Undergraduate Admissions maintains a list of approved EECS transfer courses from many other U.S. institutions at https://transfercredit.ugadmiss.umich.edu/, and the College of Engineering maintains a list of approved EECS transfer courses from international institutions at https://apps.engin.umich.edu/equivalencies/. Courses that do not appear on these lists may still transfer, but will need review. Directions for LSA students to request a course evaluation can be found at the bottom of the tcaf.engin.umich.edu webpage. Note that CSE rarely grants equivalence for EECS 280, and never for EECS 281 or above.

Mental health. Take care of your brain. If you are feeling stressed, depressed, or just need someone to talk to, there are many places to find support on campus. For more information, see: https://www.uhs.umich.edu/stressresources

Information from friends. Your friends can be a good source of information on some topics, like the workload in courses they have taken. Sometimes this information is timely and correct, but often it is confused and garbled rumors. We have some complicated requirement structures, and sometimes grant individual exceptions to requirements when it makes sense for an individual student's plan of study. Thus, if you hear something of interest, don't assume it is right—contact the CSE Advising Office to find a definitive answer.

Prerequisite chains and sequencing. Our program has a full schedule, so mistakes in understanding requirements or course sequencing can cost you additional semesters.

EECS 203 & EECS 280. Taking EECS 203 (Discrete Structures) [note: MATH 465 or 565 are acceptable alternatives] and EECS 280 (Programming) simultaneously often works well, and these are the two prerequisites for the "gateway" course, EECS 281 (Data Structures and Algorithms). However, note that EECS 183 is a prerequisite for EECS 280.

EECS 281 timing. Take 281 as soon as you can, and declare the Computer Science major during that semester if you plan to take ULCS courses the next term. Because ULCS electives are open only to declared CS majors, declaring will allow enrollment in ULCS electives the next semester, which increases your chances of enrolling in desired courses.

ULCS electives. ULCS courses are challenging and substantial, and cover a wide variety of topics in computing. The best way to choose your electives is to consider the kind of work or career path you want to pursue after getting your degree, and then choose the electives that will help you do it (see "CS-LSA Tracks" on page 9). Course selection advice can also be sought from IAs in courses you are taking; reach out to these fellow students for their suggestions.

EECS 498/398 Special Topics. This is the generic number for "Special Topics" courses. Individual sections may be approved by the department to count as ULCS or Capstone credit (prerequisites and class information is posted on the website at cse.engin.umich.edu/academics/course-information/special-topics-courses/ or may count only as general electives. **Do not assume these courses will count for a requirement unless explicitly stated by the department.**

EECS 370 timing. Taking EECS 370 (Computer Organization) at the same time as EECS 281 will enable you to register the next semester for courses that require both, like EECS 482 (Operating Systems).

Linear Algebra. If you are interested in taking more math beyond the requirements, we recommend a linear algebra course like MATH 214, MATH 217, MATH 417, or ROB 101. The content will be required for topics like Machine Learning or Robotics.

Research & Involvement Opportunities

Majoring in Computer Science at UM provides many exciting opportunities. These include:

Research: Pursue an Honors Thesis or Independent Study.
A great deal of leading-edge academic research is carried out at UM. If you show that you can do the work, you can get involved in this type of research as an undergraduate, which will provide you with extraordinarily valuable training for future work in the field. For students who qualify to pursue a CS Honors Thesis (EECS 443), working with a faculty member in their research lab can give you valuable experience for your future computer science endeavors, and is a great way to get a strong letter of reference for graduate school. If you are taking a course (usually a ULCS) where you are doing really well and you have a strong interest in the area, approach your professor to learn what research opportunities might be available. Students who do not qualify for the CS Honors program can pursue research experiences through independent study courses (EECS 399 and 499); while these courses do not satisfy CS LSA degree requirements, the credits can apply to your total credits toward a degree.

Teaching: Become an Instructional Aid.
Primarily undergraduates lead laboratory and discussion sections for EECS 183, EECS 203, EECS 280, EECS 281 and other EECS courses. As a section leader, you will have the chance to teach the next generation of CS majors and get them excited about computing. If you have done well in your CS courses and have an aptitude for and interest in teaching, you may consider pursuing the Instructional Aid opportunity. Start by contacting Karen Liska, HR specialist in CSE, at liska@umich.edu.

Mentoring: Become a Peer Advisor.
Share your experiences with other undergraduates. There are opportunities at the department and college level as well as through numerous student organizations. See the CSE Undergraduate Advising Office.

Getting Involved: Join an EECS Student Group.

- **Code-M**: Code-M at the University of Michigan is a student club for computer science and engineering students (CS-Eng, CS-LSA, and CE). They host corporate events for networking, workshops for skill-building, and social events to help members form relationships in the department. https://web.eecs.umich.edu/~cseschol/
- **HKN (Eta Kappa Nu):** HKN strives to help progress the engineering student body through leadership, scholarship, and service. HKN helps members by providing networking and educational opportunities. cse.engin.umich.edu/academics/student-life/
- **IEEE (Institute of Electrical and Electronics Engineers):** The UM campus branch of IEEE hosts social events, conducts community service events, and brings in technical speakers for meetings and recruiting purposes. cse.engin.umich.edu/academics/student-life/
- *More information on CSE student groups and teams is found here: https://cse.engin.umich.edu/academics/student-groups-and-teams/.*

Getting Experience: Internships, Co-ops, and Job Opportunities.

- **Many companies hire students for internships upon completion of EECS 281** (for some, even after EECS 280!). Since CSE graduates are in great demand, many companies believe in getting potential hires into their company very early.
- **When looking for that perfect internship, co-op, or permanent job**, your first step should always be to check in with the Engineering Career Resource Center (ECRC) to review their list of opportunities. The department forwards all job and internship postings to this office (see career.engin.umich.edu). Note that CS-LSA students have full access to the ECRC *once they are declared*.
- The **Fall and Winter Career Fairs** are great places to interview for internships; make sure you register with the Engineering Career Resource Center (ECRC) (see career.engin.umich.edu for more information).

CS-LSA Tracks

These course combinations are optional. A student may select any combination of any 16 credits for courses listed in the Upper Level CS Technical Electives (ULCS) Section above. To help students interested in a particular career path, or those wanting to explore different areas, see the topic-specific list of ULCS combinations below. These combinations, approved by the CS-LSA Chief Program Advisor, would fulfill the ULCS requirement, if completed.

Note that you may take at most one 500-level EECS course to satisfy the requirements of any track. When successfully completing a track, then the one 500-level EECS course can count towards your ULCS credit requirements.

Artificial Intelligence: AI is a broadly based multidisciplinary area comprising theoretical, experimental, and applied investigations of intelligent systems. Required: 1) EECS 492; 2) EECS 445 or 545; 3) one of EECS 442, 543, 545, 595; and 4) a 4th ULCS of student's choice. Note: you may take at most one 500-level EECS course for the above requirements.

Bioinformatics: Computation plays an increasingly important role in modern biology. This is an interdisciplinary track. Required: three ULCS courses- 1) at least two of: EECS 445, 477, 484, 485, 492; 2) a 3rd ULCS course of student's choice; 3) BIOINF 529; and 4) BIOLOGY 305 or MCDB 310. **This track is not open to Biology Majors.**

Data and Information: Fast information storage and retrieval are crucial to many computer applications, and manipulating large data collections on servers or networks pose difficult challenges for computer professionals. Required: 1) EECS 445; 2) EECS 484; 3) one of EECS 477, 482, 485, 492; and 4) 4th ULCS of student's choice.

Economics and Computation: As social and market interactions become more computational, computer science has adopted more traditional economic concepts such as decentralized decision-making and allocation of resources. This is an interdisciplinary track. Required: 1) EECS 492; 2) at least two of: EECS 475, 485, 588; 3) ECON 401; and 4) one of: ECON 406, 409, 431,442. Note: you may take at most one 500-level EECS course for the above requirements **This track is not open to Economics Majors.**

Robotics and Vision: Until recently most robots were stationary manufacturing devices, but they are rapidly evolving into mobile information gathering and decision-making platforms, with vision being perhaps their most important information gathering capability. Required: 1) EECS 467; 2) EECS 442; 3) one of: EECS 492, EECS 445, 542, 543, 567, 568; and 4) a 4th ULCS course of student's choice.

Security: Security for hardware, software, and networked systems is one of the fastest growing areas of computer science. Required: 1) EECS 388; 2) EECS 475 or 575; 3) EECS 482, 484, or 485; and 4) a 4th ULCS of student's choice.

Software Development: Designing and developing large software systems is a formidable engineering challenge and is the primary enterprise of the software industry. Required: 1) EECS 481; 2) EECS 477; 3) EECS 485; and 4) a 4th ULCS of student's choice.

Software Systems: Software systems are the tools and applications we use when we compute. Required: 1) at least three of: EECS 388, 482, 483, 484, 489; and 2) a 4th ULCS of student's choice.

Theory of Computation: Research on mathematical foundations has enormously influenced the development of computer science, yielding advances in data management, communications, security, and may other areas. This is an interdisciplinary track. Required: 1) EECS 477; 2) EECS 445 or 475; 3) one of: EECS 574, 575, 586; and 4) two of the following: Math 412, 465, 425, 475, Stats 426, IOE 510, 512, 518, and EECS 550. **This track is not open to Math Majors.**

* If a course is used as a CS-LSA Major Core Course, it may _not_ also count for a CS-LSA Track course (no double counting).

Progress Sheet and GPA Calculation

Introductory Programming: 4 credits					Name:				
Course	***Hrs.***	***Term***	***Grade***	***Note***	UMID:				
~~EECS 183~~	4				Date:				

Pre-Declaration Requirements: 16 Credits					Upper Level CS Electives: 16 Credits				
Course	***Hrs.***	***Term***	***Grade***	***Note***	***Course***	***Hrs.***	***Term***	***Grade***	***Note***
~~MATH 115~~	4								
~~MATH 116~~	4								
~~EECS 203*~~	4								
EECS 280	4								

*or Math 465/565					Capstone Course: 3-4 Credits				

CS Program Core: 16 Credits					***Course***	***Hrs.***	***Term***	***Grade***	***Note***
Course	***Hrs.***	***Term***	***Grade***	***Note***					
EECS 281	4								
EECS 370	4				**LSA College Requirements**				
EECS 376	4				**College Requirements**: Students must consult with their LSA Newnan Advisor, 1255 Angell Hall, to discuss LSA College requirements.				
STATS 250*	4								

*STATS 206, STATS 280, STATS 412, STATS 426, EECS 301, EECS 401, ECON 451, IOE 265, or TO 301 can also fulfill this requirement.									
TOTAL CTP:					**CS Major GPA:**				

Calculating Your CS Major GPA: GPA=MHP/MSH
You must include all EECS courses: EECS 183, EECS 203, EECS 280, CS Program Core, ULCS, Capstone course (CS MDE course or CS honors thesis course), and Stats 250/412/approved Stats requirement course. Do not include Math 115/116. **You must have an overall CS Major GPA* of at least 2.0 in order to graduate!**
 MHP = Michigan Honors Points
MSH = Michigan Semester Hours
* Can be found on your U-M transcript (official or unofficial).