CMUQ-SCS
Advising Resource Document

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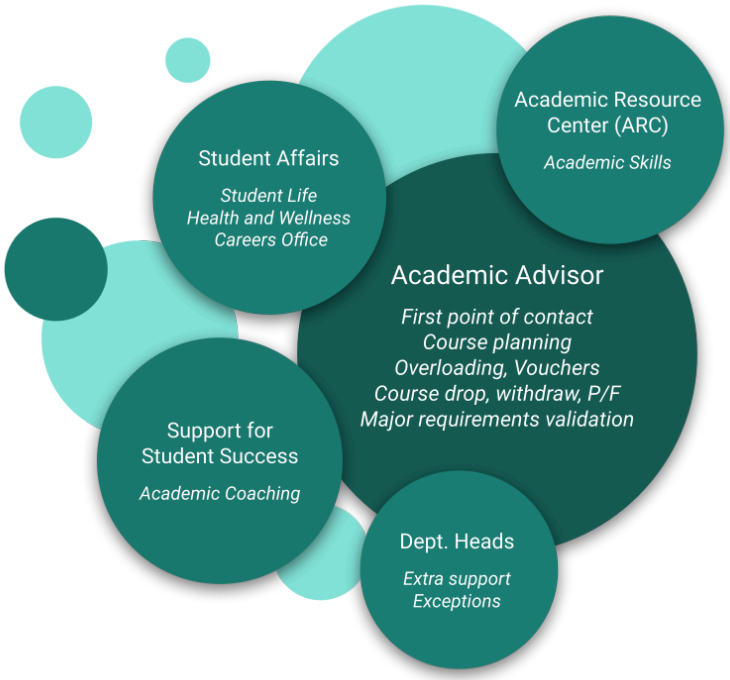
1 Advisor Role and Resources

Every student at CMUQ has an academic advisor to help them ensure they are making progress towards fulfilling their major requirements. The official advisor is typically a faculty in their home department, and is listed in the students' S3 and Stellic. In the Computer Science department, there is one advisor for first year students, and one advisor for each class that advises them from sophomore year until graduation. The academic advisor is part of the overall students' support system at CMUQ, and the list below summarizes the expected responsibilities of advisors. This is not an exhaustive list.

- Help with planning courses to ensure progress towards graduation.
- Adding exceptions for courses in Stellic once they are approved by the appropriate department or faculty (e.g. counting senior theses for concentrations, placement exams for calculus courses, graduate versions of courses).
- Help students make decisions about keeping or dropping courses.
- Ensure students remain full time and inform them of the consequences of becoming part time.
- Sign-off on applications for Pittsburgh exchange, indicating that the student has received advice about their choice of courses.
- Check-in on students with low mid-semester grades, and help with recovery plans.
- If a student is on probation, make sure they are meeting the requirements in their probation letter.
- Be a point of contact for other instructors regarding concerns about the student in their courses.
- Evaluating and approving units overload (see Section Overloading).
- Evaluating and approving course drop, withdrawal, and pass/fail (see Section Dropping, Withdrawing, pass/failing a course)
- Enable the use of vouchers to drop or pass/fail courses (see Section Vouchers).
- Inform the Associate Area Head and Area Head of any scheduling conflicts, waitlisted courses, or unavailable courses that would prevent the student from graduating on time.
- Validade that all requirements are being fulfilled for the student to graduate in their senior year.
- Advise on academic actions at the end of each semester.

Additionally, academic advisors try to be mindful of other struggles students may be facing, and so may act as a bridge to other resources on campus. Each section below describes other departments and resources on campus that advisors can choose to refer their students to. It is important to note that there may be intersections in the kind of help that students get from each department and the academic advisor. At the moment, there are no reporting rules for advisors to know whether the student has actually reached out to other resources or not, but they are free to follow up with each department and the student about it.

The following figure is a summary of the available resources and their roles.



1.1 Academic Resource Center (ARC)

The Academic Resource Center organizes workshops and provides assistance in courses by hiring course assistants or through their own tutors. Students could be referred to ARC for:

- Workshops on practical skills; e.g., these are some workshops ARC has offered in the past:
    - Note taking: Getting more from lectures by taking better notes
    - Time management: Mapping your semester for balance & success
    - QPA forecaster
    - How to improve your performance by examining returned tests
    - Planning effective study sessions
    - Get organized with google calendar
- Help with entry level Math and Programming courses.
- Finding CA jobs.

Main Contact: ARC Director, currently Mariamma Thomas (mariamma@qatar.cmu.edu).

1.2 Student Affairs

Student Affairs addresses all non-academic aspects of student life at CMUQ. Students could be referred to Student Affairs in the following situations:

- Paperwork for residency, visa, and travel.
- Housing for international students.
- Exceptional financial support.
- Activities, events, clubs.
- Community standards violations.

Main Contact: Student Affairs Director, currently Dalia Rehal (drehal@andrew.cmu.edu).

Contact person for Financial Aid is Sheila Ryan (srian@qatar.cmu.edu).

1.2.1 Health and Wellness

This department provides support to students in relation to various physical or mental health concerns.

Physical Health, Main Contact: Amie Rollins (Amier@andrew.cmu.edu).

Mental Health, Main Contact: Atorina Benjamin (atorinab@qatar.cmu.edu).

1.2.2 Careers Office

Careers Office could be helpful by helping the students with:

- Writing CVs and resumes.
- Preparing for interviews.
- Connecting with potential employers.
- Career fairs.
- Internship opportunities.
- Logistical career advice.
- Graduate studies options around the world.

Main Contact: Senior Career Consultant, currently Mohammed Mirza (mohammem@qatar.cmu.edu).

1.3 Support for Student Success

Students struggling to keep up with course work, or those that require closer attention due to other challenges they are facing, can be directed to Damian Dourado (ddourado@qatar.cmu.edu). These are some examples of how he can help the students to get back on track:

- hold regular meetings;
- keep closer track of progress in course work;
- set up checkpoints and reasonable goals;
- inform students of university processes (forms for different purposes, causes and consequences of probation or suspension, possible options for failing courses, among others).

Please understand that the advisor remains as the main point of contact for academic guidance. If you think a student needs extra support due to other challenging circumstances, you may suggest this to the student, and contact Damian. When contacting Damian, please cc the Associate Area Head. Here is a sample email message that can be sent to the student with Damian and AAH in CC (feel free to change as you wish):

Dear X,

My role as your academic advisor is to ensure that you are making progress in the Computer Science major. I have noticed that you have been struggling to keep up with the course work which has been negatively impacting your performance and hence your progress.

I believe that you would highly benefit from a more personalized help with your academic work. Hence, I am referring you to Damian Dourado (cc'd in this message), CMUQ's Director of Student Academic Success, who can coach you on how to be more effective with the load. Damian will contact you for an initial meeting so that he can learn more about you and explain how he can help.

1.4 Associate Area Head and Area Head

For truly exceptional cases, for example, when students will delay graduation, if they have disappeared or become unresponsive, or if they are underperforming consistently despite being made aware of the available support, the associate area head and area head can be contacted. Upon being informed of the student's situation, they can brainstorm solutions and propose exceptions if they are warranted. They can also contact the student to be yet another person voicing concerns and nudging the student in the right direction. If needed, they can also involve the Associate Dean for Education, currently Dudley Reynolds (dreynolds@cmu.edu).

2 CS/AI Requirements

The best way to check the progress of a student regarding their requirements for the major, minor, or concentration is through Stellic.

Even if the student has not yet declared a minor or concentration, they are able to add the requirements of the chosen program to their Stellic page, and it will automatically check which requirements are already fulfilled with the courses taken or planned by the student so far. To add a minor or concentration, the student or advisor can go to the student's page, and click on "+ add program" at the top, and a search box will appear. Note that concentrations are listed as "Minor in SCS Concentration…", even if they are not minors. Programs that are only added on Stellic but not officially declared will have the tag "Not Declared" next to it.

Unfortunately, double counting rules for minors (and concentrations) in Stellic are almost all wrong. We are working to inherit the audits from Pittsburgh to fix this. In the meantime, always double check in the minor information or with the minor advisor. If you find inconsistencies between what Stellic is computing and what the official requirement states, please contact the Associate Area Head.

2.1 CS/AI Students

The official requirements for a student to graduate with a bachelor's degree in Computer Science are detailed here: Official requirements - BS in Computer Science

The official requirements for a student to graduate with a bachelor's degree in Artificial Intelligence are detailed here: Official requirements - BS in Artificial Intelligence

The following is an overall summary of the requirements:

- 360 units to graduate
- 99-103, Core@CMU
- 7/9 core courses
- 4 constrained CS electives
    - CS: Domains, AI, Logic & Languages, and Systems
    - AI: Decision Making & Robotics, Machine Learning, Perception & Language, Human AI
- 2 general CS electives, each at least 9-units (note: independent study or senior thesis counts)
- 6/7 Math courses + 1 Technical Communication
- General Education (aka GenEd):
    - 4 Science/Engineering
    - 63 units (roughly 7 courses) in Humanities/Arts
- Ethics course **(AI only)**
- Minor or Concentration **(CS only)**

2.1.1 Science/Engineering requirement

The Science and Engineering requirements for the CS and AI majors is composed of four courses with the following constraints:

- 9 units each at least
- Two from the same department
- At least one lab
    - If the lab course is less than 9 units (such as Chem 101), then students still need 4 other science courses.

- Astronomy with the lab component DOES NOT satisfy this requirement (33-124 and 33-126).

2.1.2 Humanities/Arts requirement

The Humanities and Arts requirement includes:

- 76-101 Interpretation and Argument (typically)
- One course of at least 9 units from various category:
  - There are three categories:
    - Cognition, Choice and Behavior: typically Organizational Behavior, Philosophy (80-xxx), and Psychology (85-xxx) **(CS only)**
      or
      Cognitive Studies: a subset of the previous category **(AI only)**
    - Economic, Political and Social Institutions: typically Economics (73-xxx), Philosophy (80-xxx), and Political Science (84-xxx).
    - Cultural Analysis: typically History (79-xxx), Philosophy (80-xxx), Modern Languages (82-xxx).
  - Check Stellic for the most updated list of which courses count for each category. (The catalog tends to be a subset of what is on Stellic.)
  - If a student thinks a course should count for a category but doesn't, then ask that student to submit their argument (usually 1-3 paragraphs) and a copy of the course syllabus to the AAH. We will pass it along to a committee in Pittsburgh that evaluates such requests.
- Three more courses of at least 9 units.
  - 76-100 (Reading and Writing in an Academic Context) is one of these for most students.
- **Note:** Students may combine Humanities/Arts courses with lower units together to form a single course of 9 units or more (as per GenEd Catalog). If they are going to be used for one of the three categories, the courses need to be in the same theme. This needs to be approved by the Area Head or Associate Area Head.

2.1.3 Minors (CS only)

- Information on available minors and how to apply, including self-defined minor: https://scotty.qatar.cmu.edu/academic-services/minor-information/.

- Self-defined minors should focus on areas outside of Computer Science. If there is any uncertainty, advisors should consult the Associate Area Head or another appropriate faculty member before the student submits the request. (Just to avoid wasted time.)

- The student should figure out if they need to declare a minor (no hard deadline, automatically approved) or apply to a minor (check deadline, might not be approved). They should talk to the minor advisor.

- The process is to fill out and submit the form found at the Scotty link above.

- Once the minor is declared, you and the student will be able to see it on both S3 and Stellic (or the "Not Declared" tag on Stellic will disappear).

2.1.4 Concentrations (CS only)

The departments in the School of Computer Science offer the following concentrations (Undergraduate Concentrations):

- Algorithms & Complexity (Dept: CSD)
- Computational Biology (Dept: CB)
- Computer Graphics (Dept: CSD)
- Computer Systems (Dept: CSD)

- Human-Computer Interaction (Dept: HCI)
- Language Technologies (Dept: LTI)
- Machine Learning (Dept: ML)
- Principles of Programming Languages (Dept: CSD)
- Robotics (Dept: RI)
- Security and Privacy (S3D - prev. ISR)
- Software Engineering (S3D - prev. ISR)

Students at CMUQ can complete the following concentrations without taking courses in Pittsburgh:

- Algorithms & Complexity
- Computer Systems
- Programming Languages

Others are doable with a semester in Pittsburgh; this requires careful planning with your advisor.

To declare a concentration, students must email the Academic Program Manager at the Academic Affairs Office in CMUQ (currently Jarrin Nevel – jfn@andrew.cmu.edu) to add the concentration to their record on S3. A concentration is considered officially declared only when it is added to S3.

If a student needs to count research credits or an unlisted course towards a concentration, approval needs to be received by the concentration director in Pittsburgh according to the following guidelines:

- Concentration directors are listed in the course catalog: SCS Concentrations < Carnegie Mellon University
- For course substitutions (other than independent studies or research thesis), the student can contact the Associate Area Head.
- For counting an Honor's Thesis or Independent Study, the research advisor should contact the concentration director.
- Once written approval for any exception is given by the concentration director, this needs to be forwarded to the Associate Area Head so that the exception is properly added to the student's Stellic.

Notes:
- S3 and Stellic treat concentrations as minors. Students need not worry about this technicality.
- Concentrations appear on transcripts and not on diplomas.
- In the Algo concentration:
    - The 3 exclusive courses (which should not be used towards any other minor, major, etc.) include 15-455.
    - Some of the courses overlap with courses that students need for the Math Minor. The Math minor does not care about concentrations. So, if a student uses Combinatorics, Graph Theory to also satisfy the concentration, the math minor people won't complain.

2.1.5 SCS Senior Theses Awards

Students in the CMU Qatar campus that do a senior theses are eligible for the SCS senior theses awards. There are two of them:

- SCS Newel Award
    - Awarded by the SCS Dean's office
    - There is a prize money

    - Current committee (as of Fall 2024): Tom Cortina, Phillip Compeau, Guy Blelloch, Reid Simmons
- SCS Alumni Association award
    - Overseen by Philip Lehman

To be eligible for the award, the Area Head should send to the Associate Dean for Undergraduate Programs (currently Tom Cortina) the senior theses, posters, and a recording of the final presentation (max 15 minute).

2.1.6 Majoring and CS and AI

If a student wants to major in both CS and AI, they can double count:

- 5 core courses: 15-122, 15-150, 15-210, 15-213, and 15-251
- All math requirements (note that AI has an additional math requirement: 36-401)
- All general education courses (note that the cognition category is more restricted for AI)
- 17-200 for ethics (AI) and technical communication (CS) (but this course is not offered at CMUQ)

Note that double majors need to choose an additional AI course to be used for the AI elective for the CS major, and need to take 4 SCS electives, since all the allowable double counts are already filled.

The additional major in AI is described here: AI Additional Major.

The additional major in CS is described here: CS Additional Major.

2.2 Non-CS Students

2.2.1 CS Minor

- Official requirements - CS minor
- Pre-reqs: 15-112 & 21-127
- Core: 15-122 & 15-150 & 15-210
- At least one of: 15-213 OR 15-251
- Two more SCS courses: at least one from CSD, 15-213 or higher
- Double counting: pre-reqs + 2 other courses can double count for another major or minor (gened is not a part of a major or minor).

2.2.2 Additional Major in CS

- Official requirements - CS additional major
- Students get one degree with the primary major mentioned along with an additional major in the same diploma.
- Satisfy double counting rules.
- All the CS core, constrained electives, general electives + Math + Tech Comm.
- 5 of these can double count towards all other majors/minors.

2.2.3 Dual Degree in CS

- Do all CS AND Gen Ed requirements.
- Complete at least 450 units total.
- 5 CS core courses can double count.
- Double check double counting rules in majors.

3 Essential Information

3.1 Definitions

- Pass/Fail: A student can change a course to Pass/Fail before the pass/fail deadline for the semester.
- Passed units: Total units counting towards 360 unit graduation requirement.
- Factorable units: units counted towards QPA calculations.
- Full-Time student: A student is considered full-time if taking 36 units or more. This number includes units in mini-courses.

3.2 Quick References

- Scotty: http://scotty.qatar.cmu.edu
  - Cross registration
  - Minors
  - Forms (and where to submit them)
  - CMUQ policy for changing majors
- CMUQ Academic Calendar
- Stellic (for program requirements, unofficial)
- S3 (official registration information, called SIO for the students)
  - To quickly see all your advisees' grades (mid-semester and final), go to "Campus Life" (top right) and "Advising Roster".
- CMU Policy on Grading
- CMU Policy on Course Adds, Drops, Withdrawals & Voucher Elections
- Official requirements - BS in Computer Science
- Official requirements - CS minor
- Official requirements - CS additional major
- Schedule of Classes

3.3 Managing Courses

3.3.1 Dropping, Withdrawing, Pass/Failing

A drop equals the course and its load "vanishing". Any other option, where a letter grade is assigned (A to R, X, P, N, I), is counted in the "load". Now, for those counted in the load, only A to R, and X are factorable, which means they have quality weights that enter the QPA calculation. The other grades are not factorable and do not impact the QPA (but count towards the load).

Dropping

A dropped course disappears from the student's transcript. If a student wants to drop a course, here are some things for you to consider:

- Will the student become part-time? (Students can be part time with an exception from the Associate Dean for Education. If they go part time without such an exception, they will go on probation.) Approval is not common.
- How does the course affect student progress towards the major? Can the student drop a different course that has fewer effects?
- Dropping a course because the student will not be getting an A (or B… or C) requires a reality check with the student. Try to discourage them from "QPA Sculpting", especially when it will impact their future semesters.
- Dropping and Withdrawing before the deadlines can be done by the student themselves on S3. (Unless they are a freshman, then ask them to email Jarrin and copy their advisor.)

- Dropping a course with a pending or reported academic integrity violation is prohibited. (New rules effective 26 Aug 2024.)

Withdrawing

- After the drop deadline, the student can still withdraw from the course by the 10th week of classes (check calendar). Withdrawing after that deadline is not allowed (even with a voucher).
- Withdrawn courses are still in the transcript, with grade W.
- Withdrawn courses still count towards a student's total number of units for the semester.
    - This means, for example, that withdrawing does not impact a student's full-time/part-time status.
    - Not everyone in various admin roles at CMU may realize this, so contact the AH or AAH if you run into an issue.
    - It is important to note that some financial aid providers have their own rules, so if a student is withdrawing from a course and not counting that course would put them below 36 units, they should talk to Sheila to make sure their funder isn't going to get mad.
- Withdrawing from a course with a pending or reported academic integrity violation may be possible with a series of approvals. (New rules effective 26 Aug 2024.) To do that, please consult with Dina Al-Abdi (Office of Community Responsibility Academic Integrity Liaison).

Pass/failing

- P/N courses will count towards the total number of units.
- P/N courses will not count for any major or minor requirements.

3.3.2 Vouchers

Each undergraduate student receives three vouchers for their time at CMU. The voucher allows a student to drop or P/NP a course up until the last day of classes. The student can use only one voucher in any semester.

The deadline for using a voucher is set and enforced by the registrar in Pittsburgh and is not flexible. You can't "back date" the request after the deadline like you can with some forms.

Instructions:

- A student wishing to drop a course after the deadline must first consult with their academic advisor. It is important to note that vouchers are not intended to be used for exceptional or extenuating circumstances.
- After consultation, the academic advisor will initiate a drop voucher request in S3.
    - S3→ Student Page → Academic Records→ Registration: Student Registration→ Click on the wheel by the course name.
- After the request is initiated by the advisor, the student will receive an automated email requesting that they confirm the voucher information is correct within SIO (by selecting 'Official Schedule' under the 'Registration' tab, and clicking 'Confirm Drop'). The student will have 24 hours to confirm the drop; otherwise, the course will remain on their record.

Please note that students who face family, health or other personal crises will be considered on an individual basis as they are today and will not be required to use a voucher for such emergencies.

3.3.3 Passing with a C vs D

- Students need a C or better for all core courses that are not terminal.

- C or better is required in some Constrained or General Electives (must check catalog) – for example some concentrations require a grade of C or better for a course to count towards the concentration.
- If a student receives a passing grade (D or better) and takes the course again, both grades show up, S3 double counts the units, but we don't.

3.3.4 Course repeats

- Only one set of units of a course counts for graduation requirements.
- Some repeats may count as separate courses (e.g. independent studies and thesis).

3.3.5 Waitlists

- Cleared in the beginning of the semester by associate area head.
- Students are placed on waitlists to give priority to other students (in major, for example).
- You, the advisor, can see the waitlist and roster for any class in S3. This can help you give your students an idea of where they sit and their chances of getting in. You can also email the AAH for a given program and just ask them their opinion on the waitlist for a given course.
- If a student needs an overload or has a schedule conflict, they cannot be automatically added to a course they were waitlisted for. In this case, if they are allowed in the course, they will receive an email with an invitation to solve the conflict and register. Note that there will be a deadline for registering.

3.3.6 Overloading

Here are the full load and overload limit for CS students:

- For *fall* and *spring* semester: full load is 54 units; overload limit is 63.
- For *summer* semesters: full load is 24 units; there is no explicit overload limit specified in policies, and summer overloading probably shouldn't happen. In the rare case where it could make sense, overloading for one additional course could be considered. We should discourage it, however, since summer courses are so fast paced. (To estimate workload, multiple summer load by 2.5 to compare to a normal semester. For example, taking 27 units in the summer is similar to taking 67 units during a normal semester.)

Students can overload up to the overload limit with their advisor's approval. They can go higher with the Associate Dean of Education's approval.

The CMUQ requirements for overloading are:

- ~~at least 45 factorable units in previous semester~~ and
- previous semester QPA above 3.0 or previous semester cumulative QPA above 3.0.

Advisor approval should be done based on this policy. In general, if the student meets the above requirements then you should approve the overload. If the student doesn't meet the requirements, then you should not approve it and the student would need to directly appeal to the Associate Dean of Education.

Overloads can be set directly on S3 *after registration week*. Go to the student's profile on S3, then, in the tab "Academic Records", click on "Student Registration" in the left menu. There is a field called "Max Units" that you should be able to edit. You will need to provide a justification for the overload.

3.4 Special Courses

3.4.1 Independent Studies

- Students can take independent studies with CS faculty for topics that are not covered in an SCS course.
- An independent study can be any number of units. Need to be 9+ units to count as a CS free elective.
- Independent studies can be research or project based.
- If a student wants to do an independent study with a professor from another department, this needs to be loosely co-advised by someone in CS to ensure there is enough technical content to qualify for a CS independent study.

3.4.2 StuCo Courses

- Up to 9 credits counts towards 360 units.

3.4.3 Cross Registration

- See: https://scotty.qatar.cmu.edu/academic-services/cross-registration/
- Cross-registration is open to full-time students at the sophomore level and higher.
- Full-time students may cross-register for one course per semester.
- When cross-registered, students must adhere to the host school's academic calendar (start date, drop/withdrawal deadlines, final exam, etc.).
- The final grade that the host school reports will appear on the home transcript.
- The final grade will factor into the student's QPA.

If a student wants to use a cross-registered course for one of their requirements, they need to provide the syllabus of the course and get authorization from the Area Head, who works with Pittsburgh to make sure the course fulfills the expectation of the category.

Sep 2024 Note: Right now, cross registration is a mess. Students frequently don't get approved for the cross-reg courses they want because the other campus says it is full. Sheila now sends out a list of courses each semester that other EC schools have promised to have some space in, so encourage students to work off this list.

3.5 Probation, Suspension, or Expulsion

- Causes: lack of progress towards the degree, QPA, Academic Integrity, fall below full-time, or other severe violations.
    - QPA-related:
        - Semester QPA is below 2.0
        - Cumulative QPA is below 2.0
    - Progress related guidelines (this is not an automatic probation, depends on case):
        - Has not finished all core 100 level courses by the end of sophomore year;
        - Has not finished all core 200 level courses by the end of junior year;
        - Has attempted core courses twice and not passed (if a student drops a course in the beginning of the semester, it is not a real attempt).
- Suspensions:
    - A student goes on suspension if they are already on probation, and at the end of the probation semester, they should go on probation again.
    - Exception: If a student goes on probation for a low QPA, and then the next semester their semester QPA is above 2.0 but their cumulative is still below 2.0, they aren't suspended. Instead they just continue on probation.

3.6 Changing Major

- See: https://scotty.qatar.cmu.edu/cmuq-policy-on-changing-majors/
- Ask students to coordinate with the associate area head of the destination major.
- Official applications are processed at the end of year only, but in practice students can start working towards the destination major prior to transfer (as long as the destination major agrees).
- Students cannot be on probation to officially transfer.
- Until an official transfer is in place, the home major advisor is still the primary advisor. The advisor is responsible for:
    - verifying that the student is in touch with the destination major AAH (e.g. confirmation email from AAH);
    - informing the student that, until the transfer takes place, they are still in the original major and should be aware of any delay expected if they choose to continue with the original major, or are not admitted to the destination major.

3.7 Alternative Majors

If a student cannot finish their original major, but they have enough credits and courses in other topics, they might benefit from graduating in a student-defined major or bachelor's in general studies. For more information about those options, check the links below.

- Bachelor's in General Studies: Interdisciplinary Programs < Carnegie Mellon University
- Student Defined Major: Undergraduate Options < Carnegie Mellon University

3.8 Campus exchange

- Qatar students are allowed, but not guaranteed, one semester in Pittsburgh.
- Qatar students are allowed any number of summers in Pittsburgh.
- Exchange happens through an application process that starts around the middle of the semester before the exchange semester.
- There is no fixed criteria but in general:
    - Students are in good academic standing.
    - Students have an application that is thoughtful.
    - Normally we only allow Juniors and Seniors.
    - Space limits from Pittsburgh.
- When going to Pittsburgh, advisors should recommend courses that are not offered in Qatar.
- While in Pittsburgh, Mark Stehlik has offered to serve as an advisor to the students. If you need help with one of your students, feel free to reach out to Mark as someone who is on the ground (and in the timezone). For extreme situations, reach out to Tom Cortina.

3.9 First-Year Advising

This is a place where we collect all sorts of considerations when advising first-year students.

- The first year advisor typically has a meeting with the instructors teaching freshmen (15-112, 21-127, and Immigration) to have a better idea of who can make it and who is in trouble each time grades are released.

- If a student is failing 15-112, we do not advise them to drop mid-way. Instead, we let them follow the course until the end, so that they are better prepared for the content and load when they retake it.

    - If the student is still failing during the last week of the semester, and the 15-112 instructor agrees that the student will not pass, then a voucher should be considered for the drop.

    - Keep in mind that a D in 15-112 is passing for Information System students (who don't need 15-122), so if a student is getting a D they might not want to voucher it in case they change majors later.

- The Fall mid-semester grades are not very informative for students who are not taking concepts, and will only begin pre-concepts in the second half of the semester. Keep this in mind when evaluating their first mids-semester grades.

- If a student fails 15-112 in the Fall, they can still graduate on time. Here is a tentative plan:

    - 1S: 15-112 and concepts (21-127)
      2F: 15-150* and a CS elective
      2S: 15-122 and 15-251*
      3F: 15-213* and a CS Elective
      3S: 15-210 and a CS Elective
      4F: 15-451 and a CS Elective
      4S: Two CS Electives

3.10 Declaration and Certification on S3

This is a summary of who checks requirements, certifies programs, and adds information on S3.

Minors

- *Who adds?* Qatar Academic Program Manager (aka Jarrin)
- *Who checks requirements?* Minor advisor (advisor in S3)
- *Who certifies?* Qatar Academic Program Manager

Concentrations

- *Who adds?* Qatar Academic Program Manager
- *Who checks requirements?* Associate Area Head (aka Giselle -- advisor in S3), with the support of Concentration Directors
- *Who certifies?* Qatar Academic Program Manager

University Honors

- *Who checks requirements?* Qatar Academic Program Manager
- *Who adds?* Qatar Academic Program Manager

College Honors

- *Who checks requirements?* Area Head (aka Khaled) and Associate Area Head
- *Who adds?* Dean of Education (aka Dudley)

4 School of Computer Science

4.1 SCS Administrative Structure

4.1.1 Departments/Units and Course Numbers

- Computer Science Department (CSD) – 15-xxx
- Computational Biology Department (CBD) – 02-xxx
- Robotics Institute (RI) – 16-xxx
- Institute of Software Research (ISR) – 17-xxx
- Human Computer Interaction Institute (HCII) – 05-xxx
- Language Technologies Institute (LTI) – 11-xxx
- Machine Learning Department (MLD) – 10-xxx
- NOTE: New 07-xxx number for SCS dept independent courses

4.1.2 Management Structure

- Tom Cortina - Associate Dean for Undergraduate Programs
- Veronica Peet - Assistant Dean for Undergraduate Experience
- Mark Stehlik - Director, Undergraduate Major in Computer Science
- Vincent Aleven - Director, Undergraduate Major in Human-Computer Interaction
- Phillip Compeau - Director, Undergraduate Major in Computational Biology
- Reid Simmons - Director, Undergraduate Major in Artificial Intelligence
- There are other Associate Deans (for MS, PhD, Advancement, Finance, Strategy)

4.1.3 Department Heads

- Russell Schwartz - Professor and Head of Computational Biology, Professor of Biology
- Srinivasan Seshan - Professor and Head, Computer Science Department
- Jessica Hammer - Interim Associate Director, Thomas and Lydia Moran Associate Professor of Learning Sciences, Human-Computer Interaction Institute
- Nicolas Christin - Professor and Chair, Software and Societal Systems Department
- Carolyn Rose - Interim Director, Language Technologies Institute
- Roni Rosenfeld - Professor and Head, Machine Learning Department
- Srinivasa Narasimhan - Interim Director, Robotics Institute

4.2 Degrees

4.2.1 Undergraduate Programs

In Pittsburgh, students are admitted to SCS; then declare their chosen bachelor's degree. The offered B.S. degrees are:

- Computer Science (Managed by CS, ISR)
- Computational Biology (Managed by CB)
- Artificial Intelligence (Managed by RI, MLD, & LTI)
- Statistics and Machine Learning (MLD & Stats)
- Human-Computer Interaction

In addition to the above, the following programs are offered:

- Additional Major (CS, HCI, Robotics)
- Minors (CS, Neural Comp, HCI, SW Eng, CB, LTI, ML, Rob)
- Concentrations (Systems, Security, Theory, SW Eng, CB)

4.2.2 Fifth Year Scholar Program

- Fifth year free of cost program at CMU to explore new fields of study: https://www.cmu.edu/student-affairs/dean/fifth/

4.2.3 Fifth Year Master's

- Research based Masters in Pittsburgh for CMU CS students only.
- Can start in Summer, Fall, or Spring.
- Application deadline for the fall cycle is in October.
- Decisions announced in November.
- Application deadline for the spring cycle in January.
- Decisions will be announced in February.
- More information at: Master's Programs Admissions | Carnegie Mellon University - Computer Science Department
- Not free, actually very expensive. Tuition fees is same as regular masters program with the summer semester thrown in as a freebie
- The requirement of having an advisor by the application deadline is waived for CMUQ students.

4.2.4 Other Master's Programs

- CSD (CS, Computational Data Science with LTI)
- CBD (CB, Biotech Innovation and Comp with LTI)
- RI (Rob, Vision, Rob Sys Dev, Rob Tech)
- ISR (SW Eng, IT Strategy with Eng and Dietrich, a bunch of MSIT)
- HCII (HCI, Ed tech and Applied Learning with Dietrich, Prod Manag with Tepper)
- LTI (LT, Intel Info Sys, plus the previous two with other depts)
- MDL (ML, Secondary MS in ML)

4.2.5 Doctoral Programs

- CSD (CS, CS/Neural Cognition, CS+Portugal, Algo/Comb/Opti with Tepper/Math, Pure/applied logic)
- CBD (CB, MD/PhD in CB)
- RI (Rob, Rob/Neural Cognition)
- ISR (SW Eng, Societal Computing, SW Eng+Portugal)
- HCII (HCI)
- LTI (L&Info Tech, +Portugal)
- MLD (ML, ML/Neural Cognition, ML&Public Policy, Stats+ML with Stats)

4.2.6 Other that may be of interest (NOT SCS)

- MS of Entertainment Tech (MET Center)
- MS in Music&Tech (School of Music)
- MBA track in Tech Leadership (Tepper)

5 Known Issues & Feedback

The systems used for advising and university processes are not perfect. This section collects issues we have found, and suggestions for improvement when possible.

5.1 S3/SIO

- Counting the 360 units for graduation in S3 is wrong. (E.g. StuCos and Courses repeated count twice in the C vs. D grade)
- Grades are not processed at the right time
- It is super slow

5.2 Stellic

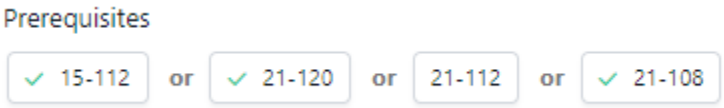
- Counting the 360 units for graduation in Stellic is wrong (number of courses and units does not match those counted manually). Stellic added a "Degree Check" requirement for QCS students as a workaround. It seems to work.
  (We have a script in our github repo that does that for us. But there is still some inconsistency.)

- The double counting rule for the Computer Systems concentration cannot be easily implemented on Stellic, so if a student is taking 5 courses towards that concentration, and needs to double count two of them, we need to add the double counting manually.

- The Professional Writing Minor requirements on Stellic and on the document in Scotty do not seem to be consistent. Please consult with the minor advisor for what courses may or may not count for each student.

- Programs in Stellic (the cards that appear when one clicks on the "Programs" link on the left menu) correspond to degrees in S3. Each program in Stellic might have different audits that apply to different students (e.g. different entry years or campus), and such audits only exist on Stellic.

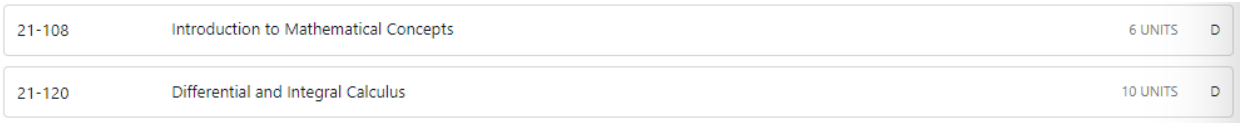
- The green checkmark next to a prerequisite in the right-side tab only means that the student has passed the prerequisite; it does not mean that they also got a high enough grade to satisfy the prerequisite. Here is an example: The tab for Concepts shows

  and the min-grade constraints:

  when the student has actually only gotten D in 21-120 and 21-108:



So, the checkmarks for 21-120 and 21-108 are not correct.

5.3 University Processes

- The process of declaring minors and concentrations by sending forms and emails to Jarrin seems to be too complicated.

5.4 Program structure

Below is a list of remarks on the prerequisite structure of the CS major. We use "OFFICIAL" for the official description of the program; "STELLIC" for the description of the Doha program in Stellic.

- ☑ ~~*First-year Immigration* is listed as 07-128 in OFFICIAL, but 07-129 in STELLIC. Not sure why the Doha program should use a different number.~~
  - Giselle: They had a different number of units until this year. I think 07-128 is now 3 units, and its description is broad enough that we can use the 128 number instead. I will try to make this change starting next year, since the schedule, registration, etc is already done for 2023.
- ☑ ~~*Research and Innovation in Computer Science* (for the *Technical Communication* requirement):~~
  - In OFFICIAL, it is listed as 07-300 and has mild requirements (only English courses);
  - in STELLIC, it is listed as 15-300, and has much stronger requirements (76-101 and two of the three courses 15-210, 15-213, 15-251).
- ☐ *Two Computer Science Electives* requirement: OFFICIAL contains the following vague clause: "*Some IDEATE courses and some SCS undergraduate and graduate courses might not be allowed based on course content. Consult with a CS undergraduate advisor before registration to determine eligibility for this requirement.*" How do we get to know which is allowed?
- ☐ *Science and Engineering* requirement:
  - The two lists of exceptions (i.e., courses that cannot count towards this requirement), in OFFICIAL and STELLIC, are different.
  - STELLIC has a very weird way of implementing the restriction that "at least two courses should be from the same department". It is unclear what it does, and whether it is correct.
- ☐ In the requirement *Mathematics and Probability* | *Probability* | *Probability and Statistics*: OFFICIAL says you need two courses (36-225 and 36-226); but STELLIC says you need four courses (36-225 and 36-226 and 36-235 and 36-236).
  - Mark says the correct expression is (36-225 and 36-226) OR (36-235 and 36-236) and that this will be in OFFICIAL starting Fall 2023.
  - Jarrin will change STELLIC so that it uses this OR.
  - Still, the second disjunct should be replaced by just 36-236, because 36-235 is a prerequisite of 36-236 anyway.
- ☐ [*Passed on to CRC (10MAR2025)*] The prerequisite for 15-151 *Mathematical Foundations for Computer Science* (i.e., the CS version of Concepts) is just 21-210 *Differential and Integral Calculus*. This is in sharp contrast to 21-127 and 21-128 (the Math version of Concepts), where the prerequisite is an OR of the following four courses: 21-210, 21-112, 21-108, 15-112. It looks reasonable to change the prerequisites of 15-151 to be the same OR of all four courses.
- ☑ ~~15-151 *Mathematical Foundations for Computer Science* is a prerequisite for *Programming Languages* concentration. This course is the SCS version of Concepts. So, this should change to 21-127 or 21-128 or 15-151 (numerous courses already recognize this interchangeability).~~
- ☐ 15-213 *Introduction to Computer Systems*:
  - In OFFICIAL, it is required to be one of the core courses.
  - In STELLIC, it is required to be either this or 18-213.

If the correct choice is the latter, then perhaps all of the courses and programs which currently list only 15-213 as prerequisite can replace that with 15-213 or 18-213 namely:

- constrained electives for *Software Systems*
- the *Computer Systems* concentration as a whole
- 15-316 *Software Foundations of Security & Privacy*
- 15-330 *Introduction to Computer Security*

☐ [*Passed on to CRC (10MAR2025)*] *Matrix courses* 21-240, 21-241, 21-242: There is too much variety on which of these are enough preparation for other courses. It seems simpler & still correct to have the OR of all three courses as the common prerequisite in all cases. Here is the current wild variety:

- 15-451 *Algorithm Design and Analysis* lists only 241.
- 11-485 *Introduction to Deep Learning* lists only 241.
- 15-281 *AI: Representation and Problem Solving* lists 240 or 241.
- The *Mathematics and Probability* | *Matrix/Linear Algebra* requirement lists 241 or 242.
- 21-484 *Graph Theory* lists 241 or 242.
- Each of the courses 21-266, 21-268, 21-269 lists 241 or 242.
- 10-315 *Introduction to Machine Learning* lists 240 or 241 or 242.

☑ ~~17-313 *Foundations of Software Engineering*: How come it has no prerequisites whatsoever? Don't you need to have some coding experience first?~~

- *Ryan*: *I think this is a historical thing. ISR (now S3D) didn't want to limit who could enroll as long as they have sufficient programming experience from some source. They also strongly prefer experience (like an internship) that they can't enforce with pre-reqs anyway. The assumption is that students without sufficient background won't be silly enough to sign up. (Although I think some sort of pre-req would be helpful...)*
  The course webpage/syllabus says: There are no formal prerequisites, but we strongly recommend having a solid foundation in programming before taking this class (e.g. 15-121, 15-122). You will also get more out of the course if you have experience with some larger development projects, for example, through larger class projects (e.g. 17-214, 15-410), internships, or open-source contributions. If you have questions, please don't hesitate to reach out to the class instructors.

☐ [*Passed on to CRC (10MAR2025)*] 15-251 *Great Ideas in Theoretical Computer Science* and 21-228 *Discrete Mathematics*: Many courses have the OR of these two as a prerequisite: 15-451, 15-312, 15-356, 21-301, 21-484. But 15-455 *Undergraduate Complexity Theory* and *Algorithms and Complexity* concentration ~~and *Programming Languages* concentration~~ all require only 15-251. This looks like an omission. They should probably all change this to 15-251 or 21-228.

☑ ~~15-281 *AI: Representation and Problem Solving*: For *Artificial Intelligence* requirement, STELLIC lists both this course and a course 15-381 with the same title. But OFFICIAL lists only 15-281.~~

- Giselle: This is because 15-381 became 15-281 after some point. The requirement for 15-318 still exists in Stellic to cover students that have taken this course number in the past. But the 15-381 requirement should be removed eventually.

☑ ~~15-281 *AI: Representation and Problem Solving*: In STELLIC, the matrix algebra capacity for this course can also be covered by 18-202. In OFFICIAL, this course is not listed.~~

☐ [*Passed on to CRC (10MAR2025)*] It seems that 21-112 and 21-120 are interchangeable as prerequisites. This is explicitly mentioned in the course description of 21-112 (*"Successful completion of 21-111 and 21-112 entitles a student to enroll in any mathematics course for which 21-120 is a prerequisite."*) and is also used by several courses: 21-127, 21-128, 36-218, 21-122. But 11-485 *Introduction to Deep Learning* lists only 21-120. This should probably change to 21-120 or 21-112.

☐ 15-459 *Undergraduate Quantum Computation* is listed as elective for *Algorithms and Complexity* concentration in OFFICIAL, but not in STELLIC.

☐ [*Passed on to CRC (10MAR2025)*] 36-218 Probability Theory for Computer Scientists: This is a 200-level course which is listed as a prerequisite for *Algorithms and Complexity* concentration. But then none of the required or elective courses for that concentration have 36-218 as a prerequisite. This is strange. A more natural structure would either have several of the other courses require it; or have the course be completely removed from the prerequisites for the concentration.

☑ ~~The courses 15-346, 18-344, 18-447 are listed as electives for *Computer Systems* concentration in OFFICIAL, but not in STELLIC.~~