This form is to be used when proposing a new CAS or GRS course.

DEPARTMENT OR PROGRAM: Department of Computer Science  
DATE SUBMITTED: 2/2/17

COURSE NUMBER: GRS CS 901

COURSE TITLE: Internship in Computer Science

INSTRUCTOR(S): Hongwei Xi

TO BE FIRST OFFERED: Sem./Year: SUM1 / 2017

SHORT TITLE: The “short title” appears in the course inventory, on the Link University Class Schedule, and on student transcripts and must be 15 characters maximum including spaces. It should be as clear as possible.

COURSE DESCRIPTION: This is the description that appears in the CAS and/or GRS Bulletin and The Link. It is the first guide that students have as to what the course is about. The description can contain no more than 40 words.

For Master’s students in Computer Science, this internship course gives students substantive practical experience in the computing industry. This course may be taken once, with approval from the Director of the Master’s Program. Bi-weekly and final reports required.

PREREQUISITES: Indicate “None” or list all elements of the prerequisites, clearly indicating “AND” or “OR” where appropriate. Here are three examples: “Junior standing or CAS ZN300 or consent of instructor”; “CAS ZN108 and CAS ZN203 and CAS PQ206; or consent of instructor”; “For SED students only.”

1. State the prerequisites:

   Admission as a Master’s student in Computer Science, including those with specializations, in the Department of Computer Science.

2. Explain the need for these prerequisites:

   The Master’s students in the Department of Computer Science typically pursue a terminal degree with the intention of working in the CS industry immediately after graduation. Internships can be crucial for obtaining a desirable job after graduation. This course will formalize the internship process.
for our Master’s students. For our international students, which compromise of a large majority of our Master’s students, this course is also critical for ISSO compliance regarding Curricular Practical Training (CPT).

CREDITS: (check one)
☐ Half course: 2 credits  ☐ Full course: 4 credits  ☐ Variable: Please describe.
☐ Other: Please describe.

Provide a rationale for this number of credits, bearing in mind that for a CAS or GRS course to carry 4 credits, 1) it must normally be scheduled to meet at least 150 minutes/week, AND 2) combined instruction and assignments, as detailed in the attached course syllabus, must anticipate at least 12 total hours/week of student effort to achieve course objectives.

Internships run for various lengths of time (e.g. 4-12 weeks), entail various commitments in terms of hours per week (e.g. 10-40 hours), and involve different levels of academically-qualified engagement. We anticipate that the standard level of credits will be 2 credits for an 8-week internship, working 20-40 hours per week. A variable number of credits allows for sufficient flexibility for the full range of possible internships.

DIVISIONAL STUDIES CREDIT: Is this course intended to fulfill Divisional Studies requirements?
☐ No.
☐ Yes. If yes, please indicate which division ______________________ and explain why the course should qualify for Divisional Studies credit. Refer to criteria listed here and specify whether this course is intended for “short” or “expanded” divisional list.

HOW FREQUENTLY WILL THE COURSE BE OFFERED?
☐ Every semester  ☐ Once a year, fall  ☐ Once a year, spring  ☐ Every other year
☐ Other: Explain:

NEED FOR THE COURSE: Explain the need for the course and its intended impact. How will it strengthen your overall curriculum? Will it be required or fulfill a requirement for degrees/majors/minors offered by your department/program or for degrees in other departments/school/colleges? Which students are most likely to be served by this course? How will it contribute to program learning outcomes for those students? If you see the course as being of “possible” or “likely” interest to students in another departments/program, please consult directly with colleagues in that unit. (You must attach appropriate cognate comments using cognate comment form if this course is intended to serve students in specific other programs. See FURTHER INFORMATION below about cognate comment.)

Computer Science is quickly becoming one of the most sought-after degrees at all levels of education. A Master’s degree in Computer Science is recognized as giving students a deeper knowledge of the skills necessary to excel in a professional career and thus gives students with a graduate degree a significantly higher earning potential. Such degrees are pursued by students with varied backgrounds including computer science, mathematics, engineering, economics, and others.
The Department of Computer Science at Boston University offers an MS degree, marketed as a professional degree aimed at individuals wishing to further their knowledge before entering the industry, as well as those already in the industry who wish to further their careers. To reach their goals within the industry, internships are often seen as crucial to employers. Current students have been offered internships across a wide array of companies from startups to large organizations.

This course would formalize the process for students to take internships while in our Master’s programs. This course is particularly important for international students, who can only do internships with off-campus, domestic companies by using Curricular Practical Training (CPT) or Optional Practical Training (OPT). International students represent almost 85% of our MS students alone. These students are reluctant to use their limited OPT time during their studies as many wish to save this time for their first domestic job after graduation. In addition, many companies prefer students to have as much OPT after graduation before deciding whether or not to sponsor them with a visa. However, due to ISSO restrictions, students are unable to use CPT unless certain conditions are met. One of the avenues through which CPT is granted is a course that counts for credit.

For both domestic and international students, the internship course enables them to have the fact that they completed an internship appear on their transcript, further highlighting their experience to potential employers. Having an available internship course sends a strong message to both students and employers in regards to the value the Department of Computer Science places on practical experience as part of the holistic training of our Master’s students. This course has the potential to strengthen the external perception of our program both for recruiting and job placement.

Enrollment in GRS CS 901 will be granted upon approval by the Director of the Master’s Program, thus enforcing uniformity in assessment of the academic merit of each proposed internship. In proposing an internship, students will be required to submit a short document (e.g. 1-3 pages) with details on:

1. Appropriate Industry Mentor(s)
2. Specific project(s) in which the student will be involved, pertaining to a practical problem of interest to the industry sponsor
3. How the student will be involved with the project, detailing the computer science skills necessary for the student’s responsibilities
4. Mechanisms by which the student will be incorporated into the larger industry culture, such as through group meetings, presentation of results, etc.

During an internship, students will be asked to send bi-weekly updates of their progress to the Director of the Master’s Program. Upon completion of the internship, each student will be required to submit a final report (e.g. 10-12 pages) on their experience.

While this course will not be required (we do not want to commit ourselves to finding internships for our students), it will be counted for credit towards MS degrees in Computer Science. This course will not be available to students in any of our other degree programs, nor to students in other departments or schools.

NOTE: Due to the nature of this course, there is no week-by-week syllabus attached.

1 Having this course available will allow international students to check the box, “Internship or placement required as part of a course,” on the CPT form. This course is being set up to satisfy the three ISSO requirements: (1) course is integral to the program of study; (2) course is taken for credit; and (3) course is faculty-led with clearly-defined academic expectations and grading.
ENROLLMENT: How many undergraduate and/or graduate students do you expect to enroll in the initial offering of this course?

We currently enroll around 80 MS students with an expected growth to 100 FTE MS students. We project that the enrollment in this course will vary widely by semester with peak enrollment taking place over the summer, with an estimated around 65 students in the first summer.

CROSS-LISTING: Is this course to be cross-listed or taught with another course? If so, specify. Chairs/directors of all cross-listing units must co-sign this proposal on the signature line below.

OVERLAP:

1. Are there courses in the UIS Course Inventory (CC00) with the same number and/or title as this course?
   - [□] No.
   - [ ] Yes. If yes, any active course(s) with the same number or title as the proposed course will be phased out upon approval of this proposal.
   
   NOTE: A course number cannot be reused if a different course by that number has been offered in the past five years.

2. Relationship to other courses in your program or others: Is there any significant overlap between this course and others offered by your department/program or by others? (You must attach appropriate cognate comments using cognate comment form if this course might be perceived as overlapping with courses in another department/program. See FURTHER INFORMATION below.)

FACILITIES AND EQUIPMENT: What, if any, are the new or special facilities or equipment needs of the course (e.g., laboratory, library, instructional technology, consumables)? Are currently available facilities, equipment, and other resources adequate for the proposed course? (NOTE: Approval of proposed course does not imply commitment to new resources to support the course on the part of CAS.)

None.

STAFFING: How will the staffing of this course, in terms of faculty and, where relevant, teaching fellows, affect staffing support for other courses? For example, are there other courses that will not be taught as often as now? Is the staffing of this course the result of recent or expected expansion of faculty? (NOTE: Approval of proposed course does not imply commitment to new resources to support the course on the part of CAS.)

Creation of this course will not directly affect staffing support for other courses. However, it should be noted that there are nontrivial staff and faculty resources currently in place that will be utilized in this course. Demand on these resources can be expected to scale proportionally with the projected growth of the MS program. Maintaining those resources will be vital for our ability to offer internship opportunities through this course.

Staff resources will include time spent by the Graduate Program Administrator to communicate and coordinate with the companies providing the internships, meet with stakeholders both in the industry and at
the University, help students with paperwork related to CPT requests, advise students on the practical aspects of the course, and track the bi-weekly student-intern reports.

Faculty resources will include time spent by the Director of the Master’s Program to evaluate student internship proposals, communicate with industry partners when needed, review bi-weekly reports and final papers from interns, and assign course grades.

BUDGET AND COST: What, if any, are the other new budgetary needs or implications related to the start-up or continued offering of this course? If start-up or continuation of the course will entail costs not already discussed, identify them and how you expect to cover them. (NOTE: Approval of proposed course does not imply commitment to new resources to support the course on the part of CAS.)

None

EXTERNAL PROGRAMS: If this course is being offered at an external program/campus, please provide a brief description of that program and attach a CV for the proposed instructor.

FURTHER INFORMATION THAT MUST BE ATTACHED IN ORDER FOR THIS PROPOSAL TO BE CONSIDERED:

• A complete week-by-week SYLLABUS with student learning objectives, readings, and assignments that reflects the specifications of the course described in this proposal; that is, appropriate level, credits, etc. (See guidelines on “Writing a Syllabus” on the Center for Teaching & Learning website.) Be sure that syllabus includes your expectations for academic honesty, with URL for pertinent undergraduate or GRS academic conduct code(s).

• Cognate comment from chairs or directors of relevant departments and/or programs. Use the form here under “Curriculum Review & Modification.” You can consult with Joseph Bizup (CAS) or Jeffrey Hughes (GRS) to determine which departments or programs inside and outside of CAS would be appropriate.

DEPARTMENT CONTACT NAME AND POSITION:

DEPARTMENT CONTACT EMAIL AND PHONE:

DEPARTMENT APPROVAL: ___________________________ 2/2/17  Date

Department Chair

__________________________  ___________________________

Other Department Chair(s) (for cross-listed courses)  Date
DEAN’S OFFICE CURRICULUM ADMINISTRATOR USE ONLY

CAS/GRS CURRICULUM COMMITTEE APPROVAL:

☐ Approved Date: _____________________
☐ Tabled Date: _____________________
☐ Not Approved Date: _____________________

Divisional Studies Credit:

☐ Endorsed
☐ HU
☐ MCS
☐ NS
☐ SS
☐ Not endorsed

______________________________________________________________
Curriculum Committee Chair Signature and Date
Comments:

PROVISIONAL APPROVAL REQUESTED for Semester/Year ________________________

______________________________________________________________
Dean of Arts & Sciences Signature and Date
Comments:

CAS FACULTY: Faculty Meeting Date: _____________________ ☐ Approved ☐ Not Approved

______________________________________________________________
Curriculum Administrator Signature and Date
Comments:
Student Guidelines for
GRS CS 901: Internship in Computer Science

The course GRS CS 901 is designed to formalize the role that internships can play in the academic program of students in MS programs in the Department of Computer Science. The course description reads as follows:

“For Masters students in Computer Science, this internship course gives students substantive practical experience in the computing industry. This course may be taken once, with approval from the Director of the Master’s Program. Bi-weekly and final reports required.”

This is a variable credit course, although typically it will be taken for only 2 credits. Domestic students may take this course while doing an internship if so desired, but it is not necessary that they do so, unless they have a desire to see internship credit showing up on their transcript. On the other hand, this is the only way that international students will be allowed to do a US-based internship and use Curricular Practical Training (CPT) while doing so.

In order to register for this course, the student will need to first submit a short document (1-3 pages) with the following details:

1. Identify an appropriate mentor within the company
2. Describe the specific project(s) in which you will be involved, pertaining to a practical problem of interest to your industry sponsor
3. Detail the specific ways in which you will be involved with the project, including which computer science skills are necessary for your internship responsibilities
4. List the ways in which you will be incorporated into the larger industry culture such as through group meetings, presentation of results, etc.

This information should be brought to the Program Administrator (currently Christian Cole). The Program Administrator will work with the Director of the Master’s Program (currently Professor Xi) to assess whether or not approval is granted to use a proposed internship for course credit.

Note that in order to provide the required details described above, you will need to have already applied for and been offered an internship. Once a company has made an offer of internship to a student, then the student should work with them to generate this document required by the Department of Computer Science. Only after receiving approval from the Director of the Master’s program for a proposed internship will the student be allowed to register for GRS CS 901.

During the internship, the student will be required to send short reports, once every two weeks, updating on the student’s progress. There will be a web-based form for this, allowing the student to submit reports online. The student will also be required to produce a final report at the end, of roughly 8-10 pages, describing his/her experience in some detail.
For international students, please note the following points:

1. You may only do a US-based, off-campus internship using CPT or OPT. Most of you presumably will want to use CPT. The CPT policy is described in detail here (please read it carefully!): [http://www.bu.edu/ isso/employment-internships/curricular/](http://www.bu.edu/ isso/employment-internships/curricular/)

2. You must have been on campus as a full-time student for two full academic semesters before you are eligible to use CPT.

3. After you receive departmental approval for taking GRS CS 901, you will need to do an additional set of paperwork to get ISSO approval for your internship. This paperwork will consist of two main pieces. The first is filling out an ISSO form, in which you check that your internship will satisfy the first of the criteria listed on the webpage above (i.e., "A course offered in the Boston University course catalog for which a student will earn academic credit."). You will then need a letter signed by the Director of the Master’s Program supporting your ISSO application, in which details of the internship are described and justification given for why it is acceptable for GRS CS 901 credit.

We are excited to be able to offer this new opportunity to our students. At the same time, please note that it will take time to go through the full process required for approving any internship, including – where relevant -- getting ISSO approval for CPT requests. Please start early if you are planning on internships (at least 1.5 - 2 months prior, if you are using CPT) and please be patient with the process.