

Proposal for :

Department of Computer and Information Sciences
Accelerated 4+1 Bachelors-Masters Degree Programs

March 4, 2010



TEMPLE UNIVERSITY
A Commonwealth University

College of Science and Technology
Department of Computer and
Information Sciences

Wachman Hall (038-24)
Philadelphia, Pennsylvania 19122
(215) 204-8450

TO: Mia Luehrmann
Office of the Dean, CST

FROM: Frank Friedman
CIS Department

RE: Change in Array for CIS Undergraduate Programs
For Students Accepted to the CIS Accelerated 4+1 Bachelors-Masters Degree
Programs (ABMD)

December 21, 2009

The proposed five Accelerated 4+1 BMD plans of study involve the following changes related to the CIS graduate programs (MS in IS&T and MS/PhD in CIS) associated with the 4+1.

- Students accepted to the ABMD program must take three MS courses in their Senior year of undergraduate study. ABMD students must earn a B or better in each of these 3 graduate courses in order to remain in the ABMD program.
- Students accepted to the ABMD are expected to complete the entire 5-year program within 5 contiguous semesters beginning with the second semester of their Junior year.
- Students may carry into the graduate program no more than 9 non-matriculated credits earned in their Senior year.
- Students accepted to a CIS 4+1 program need not take the GRE/GMAT exam.
- Students accepted to a CIS 4+1 program need not resubmit their letters of recommendation nor their TOEFL exam score when applying to the Masters program (in CIS or in IS&T).
- IS&T students in the ABMD with MS in IS&T program may waive CIS 5106 (with substitution of an elective MS course) upon completion with a B or better of the IS&T undergraduate Capstone sequence, CIS 4296 and 4396.
- ABMD students will remain coded as undergraduates ("U") even though their graduate courses will be coded as "G" and they will pay graduate tuition for these courses.

The following are the changes involved in the undergraduate plans of study for ABMD students.

1. Students enrolled in the BS in IS&T normally complete their studies by taking 4 electives, which may be selected from an array of IS&T or CS electives (subject to the satisfaction of

appropriate prerequisites) or from IS&T-related courses in other departments, approved in advance by the undergraduate IS&T advisor. Instead, BS in IS&T students accepted into the 4+1 ABMD will take 3 of the 4 Core MS in IS&T courses in their Senior year, and two additional undergraduate elective courses selected as above. Any credit deficiencies resulting from this substitution must be made up, most likely by taking one additional 4 credit IS&T or IS&T-related elective selected as above. The net elective loss for undergraduate IS&T students accepted to the 4+1 program is therefore 2 (two) undergraduate electives.

2. There are no elective courses in the BA in IS&T. Therefore, students in the BA in IS&T program who are accepted into the 4+1 ABMD (with the MS in IS&T) will take 3 of the 4 Core MS in IS&T courses in their Senior year in place of free (non-CIS) electives. Any credit deficiencies resulting from this substitution must be made up.
3. BS in CS students normally are required to take four CS electives to complete their degree. BS in CS students who are accepted into 4+1 ABMD (with the MS in IS&T) will be required to take CIS 4319 (Networks and Communications) and CIS 4331 (Databases), as required courses, in place of two of these electives. A third elective, a Theory course, will remain as a required elective for BS in CS 4+1 students. In addition, all BS in CS students will take 3 of the 4 Core MS in IS&T courses (9 credits) in their Senior year in place of the fourth CS elective and 4 credits of non-CIS electives.
4. There are no elective courses in the BA in CS. Therefore, students in the BA in CS program who are accepted into the into the 4+1 ABMD (with the MS in IS&T) will take 3 of the 4 Core MS in IS&T courses in their Senior year in place of free (non-CIS) electives. Any credit deficiencies resulting from this substitution must be made up. These students will also need to replace two additional free electives with CIS 4319 and CIS 4331.
5. BS in CS students selected for the 4+1 with the MS in CIS will be required to replace two four-credit CS electives with 3 three-credit Core MS in CIS Graduate courses (normally at the 5000 level and normally selected from the set of Core courses relevant to their plan of study).

Temple University
Request to Establish, Terminate, or Change an Academic Program
(DRAFT 2.25.09)

Date: 12/2/2009 School/College: CST

Individual responsible for proposal:

Name: Justin Y. Shi Title: Grand Committee Chair
e-mail: shi.j@temple.edu Phone: 1-6437

Action sought:

*Go to <http://www.temple.edu/deputyprovost/academic-proposals/OfficeoftheDeputyProvost-academicchanges.htm> for a list of action types.

Establish Terminate
 Change: Rename Restructure Change in array

Type of Program: (list) Select from list below

*Go to <http://www.temple.edu/deputyprovost/academic-proposals/OfficeoftheDeputyProvost-academicprogrdefinitions.htm> for a list of program definitions.

Major Dual Degree or Dual/Plus Degree
 Major with required or optional track/concentration Joint Degree
 Track / concentration (within an existing major) Academic Honors
 Minor Certificate of Specialized Study
 Collegial Requirements Certificate of Advanced Study
 Co-Major Certificate of Completion (non-credit)

Accelerated

For changes in courses, use the *Proposal to Establish, Revise or Terminate a Course* form.

Degree, Abbreviation and Title of Program: MS/CS 4+1
[e.g. Bachelor of Science, B.S., in New Program]

Brief Description (approximately 250 words):

see attached.

Proposed date of implementation: Fall 2010 Spring 2 Other: _____

Additional information:

Review and Approvals

- This proposal has gone through the necessary approval processes as outlined by the by-laws, governance structure, or practices of the school/college, and I approve the proposal on behalf of the school/college.

Dean

Date

Office of the Provost use only:

Endorsed by:

____ Senior Vice Provost for Undergraduate Studies Date:
____ Graduate School / Graduate Board Date:
____ Deputy Provost Date:
____ Other: _____ Date:

Draft / Preliminary submitted Date:
Final Due Date:
Final submitted Date:

Document no: _____ AAC Approval _____ BOT Approval _____

AY of Program Review: _____ AY of Accreditation (if applicable): _____

Guidelines for Temple University Students Participating in the CIS Department 4+1 Accelerated Bachelors/Masters Degree Program in Computer and Information Sciences

03/04/2010

(pending University approval)

The Temple University CIS Department 4+1 Accelerated Bachelors/Masters Degree Program in Computer and Information Sciences (ABMD with Masters in CIS) is designed for high achieving Temple CIS undergraduate students interested in completing a Master of Science degree in Computer and Information Sciences in an additional year of full-time study beyond the Bachelor's degree. The goal of the program is to encourage such students to complete their undergraduate work in a timely manner, and encourage them to remain at Temple for their Master's graduate work. We can achieve this goal by designing an undergraduate program of study (see attached) enabling each student to complete the first three MS in CIS Core courses (CIS 8511, CIS 8512, CIS 8513) as part of their undergraduate work.

Applicants for the ABMD with Masters in CIS must have completed a minimum of 83 credits toward graduation with a cumulative GPA of 3.5 and a minimum of 39 Math/CIS credits to qualify for admission to the program. All students approved to enter the ABMD will have completed the equivalent of 6 full semesters of study at Temple. The undergraduate courses that must be completed are all courses from the B.S. Computer Science program except two CIS Electives that are typically taken during the senior year. Interested students must see the Program Coordinator to ensure they are on the correct path for both timely admission to the ABMD with Masters in CIS and completion of the baccalaureate degree.

Approved applicants will begin the ABMD with MS in CIS program in the Fall (first semester) of their senior year. A completed ABMD application must be on file in the CIS Department by January 15th of the semester immediately proceeding the Fall semester. No student will be admitted to the program unless the CIS department can verify that the applicant can complete the CIS Department CS baccalaureate degree in 2 semesters after enrolling in the program.

ABMD applicants must submit the following information.

- ABMD application
- A statement of goals of approximately 500-1,000 words (should include the following elements: your specific interest in Temple's program; your professional goals; and your academic and professional achievements)

- An up-to-date resume
- At least two letters of recommendation from Computer & Information Sciences faculty

ABMD participants are expected to have a completed Graduate School application on file with the Graduate School (including a fully paid fee) by November 1st of their senior year. Letters of recommendation (BUT: they are included as stated above!) and the TOEFL exam score do not need to be submitted, and the GRE/GMAT exams will be waived.

Students admitted to the ABMD with Masters in CIS are expected to complete the entire program within four contiguous semesters beginning with the first semester of their Senior Year. Students are expected to maintain full-time study status during the last two semesters of undergraduate studies and the additional year of the Master's program study. No undergraduate overloads (more than seventeen credits) will be allowed.

Students failing to complete the baccalaureate program of study with the required coursework or to maintain a 3.5 undergraduate grade point average or to earn at least B in each of the three graduate courses within the 2 semester time frame will be de-enrolled from the program. However, they may continue working toward the undergraduate degree and then apply for admission to the MS in Computer and Information Sciences program following the normal procedures of the Graduate School. Graduate courses taken as an undergraduate may be counted towards their graduate program.

Administrative information:

1. Students enrolled in the ABMD program must take three MS courses (CIS 8511 and CIS 8512 during Senior Fall semester and CIS 8513 during the Senior Spring semester) and credit them toward both their undergraduate and MS in Computer and Information Sciences programs. These courses may only be counted as CS undergraduate electives.
2. Students may bring into the graduate degree program no more than 9 non-matriculated graduate credits earned in the required courses taken as undergraduates in their senior year.
3. CST (CIS) will produce printed and electronic (web) information to be correct and consistent with University policies and procedures.
4. CST (CIS) will be responsible for recruiting students.
5. The Computer Science Program will determine the graduate course equivalencies for the undergraduate requirements, i.e. define CIS 8511, 8512, and 8513 as

meeting the elective requirements for the undergraduate degrees. When approved, this information will be provided to the DARS office.

6. CST (CIS) will designate a program administrator who will be responsible for communicating with and tracking ABMD students from their acceptance into the program through their graduation with both degrees
 - a. CST will apply for a special designation code.
 - b. The program administrator will also be responsible for ensuring that students are coded correctly so students receive their diplomas and other information related to program.
7. Students will maintain the “U” matriculation code while an undergraduate,, even though graduate courses will be coded as “G” on the undergraduate record. As a result
 - a. Students will have an undergraduate GPA for both graduate and undergraduate coursework until students are coded as a “G” at the beginning of their Masters year. Students while coded as undergraduates (“U”) are charged graduate course differential tuition for the graduate course.
 - b. Upon request, the CST Dean’s Office will provide documentation that will identify the 9 credits of graduate coursework and grades earned.

Computer Science BS + MS: 4+1 Semester Sequence Proposal

<p><u>Freshman – Fall</u> (16 cr) CIS 1001 Intro to Academics in CS (1cr) CIS 67/1068 Program Design & Abstraction (4 cr) Math C085/1041 Calculus I (4 cr) Gen Ed English C050/1002 (4 cr) Gen Ed World Society (3 cr)</p>	<p><u>Freshman – Spring</u> (17 cr) CIS 68/2168 Data Structures (4 cr) Math 86/1042 Calculus II (4 cr) Gen Ed IH 1196 (3 cr) Gen Ed Race (3 cr) Gen Ed Behavior (3 cr)</p>
<p><u>Sophomore – Fall</u> (15 cr) CIS 66/1166 Math Concepts in Computing I (4 cr), or Math W141/2196 Basic Concepts of Math (3 cr) CIS 72/2107 Computer Sys & Low-Level Prog (4 cr) Gen Ed IH 1297 (3 cr) Eng W102/2696 Technical Writing (3 cr) Elective (1-2 cr)</p>	<p><u>Sophomore – Spring</u> (15 cr) CIS 207/3207 Intro to Sys Prog & Op Sys (4 cr) Math 3033 cr Probability Theory for CS (4 cr) Gen Ed US Society (3 cr) Gen Ed Arts (3-4 cr) Elective (1-0 cr)</p>
<p><u>Junior –Fall</u> (15 cr) CIS 3287 Software Design/Practicum (4 cr) CS Theory Elective** (3 cr) Lab Science* 1 (4 cr) Elective (4 cr)</p>	<p><u>Junior – Spring</u> (15 cr) CIS 223/3223 Data Structures & Algorithms (4 cr) UG CS Elective*** (3-4 cr) Lab Science* 2 (4 cr) Elective (4-3 cr)</p>
<p><u>Senior – Fall</u> (15 cr) CIS 511/8511 Prg Techniques 8511 (3 cr) CIS 510/8513/Automata (3 cr) Elective (4 cr) Elective (5 cr)</p>	<p><u>Senior – Spring</u> (15 cr) Writing Intensive CIS 4397 Independent Research, or CIS 4398 Projects in Computer Science (4 cr) CIS 512/8512 Operating Systems (3 cr) Elective (4 cr) Elective (4 cr)</p>
<p><u>5th Year – Fall</u> (9 cr) CIS 615/9615 Algorithms (3 cr) CS Grad Elective (3 cr) CS Grad Elective (3 cr)</p>	<p><u>5th Year – Spring</u> (9 cr) Graduate CS Elective(s) (3-6 cr) Graduate Project (6-3 cr)</p>

Credits in the major: 67-71

Credits in General Education: 25-26

Elective credits: 31-26

Total credits: 123 (includes 9 graduate credits)

Additional Graduate credits: 18 for a total of 27 graduate credits

Temple University
Request to Establish, Terminate, or Change an Academic Program
(DRAFT 2.25.09)

Date: 12/2/2009 School/College: CST

Individual responsible for proposal:

Name: Justin Y. Shi Title: CBS Grad Cert Chair
e-mail: shi@temple.edu Phone: 1-6437

Action sought:

*Go to <http://www.temple.edu/deputyprovost/academic-proposals/OfficeoftheDeputyProvost-academicchanges.htm> for a list of action types.

Establish Terminate
 Change: Rename Restructure Change in array

Type of Program: (list) Select from list below

*Go to <http://www.temple.edu/deputyprovost/academic-proposals/OfficeoftheDeputyProvost-academicprogramdefinitions.htm> for a list of program definitions.

Major Dual Degree or Dual/Plus Degree
 Major with required or optional track/concentration Joint Degree
 Track / concentration (within an existing major) Academic Honors
 Minor Certificate of Specialized Study
 Collegial Requirements Certificate of Advanced Study
 Co-Major Certificate of Completion (non-credit)
 Accelerated

For changes to courses, use the Proposal to Establish, Revise or Terminate a Course form.

Degree, Abbreviation and Title of Program: MIST/IST/CS 4+1
[e.g. Bachelor of Science, B.S, in New Program]

Brief Description (approximately 250 words):

See attached.

Proposed date of implementation: Fall 2010 Spring 2 Other:

Additional information:

Review and Approvals

- This proposal has gone through the necessary approval processes as outlined by the by-laws, governance structure, or practices of the school/college, and I approve the proposal on behalf of the school/college.

Dean

Date

Office of the Provost use only:

Endorsed by:

____ Senior Vice Provost for Undergraduate Studies Date:
____ Graduate School / Graduate Board Date:
____ Deputy Provost Date:
____ Other: _____ Date:

Draft / Preliminary submitted Date:
Final Due Date:
Final submitted Date:

Document no: _____ AAC Approval _____ BOT Approval _____

AY of Program Review: _____ AY of Accreditation (if applicable): _____

Guidelines for Temple University Students Participating in the CIS Department 4+1 Accelerated Bachelors/Masters Degree Program With MS in IS&T

03/04/2010

(pending University approval)

The Temple University CIS Department 4+1 Accelerated Bachelors/Masters Degree Program (ABMD) with MS in IS&T is designed for high achieving Temple CIS undergraduate students interested in completing a Master of Science degree in Information Science and Technology in an additional year of full-time study beyond the Bachelor's degree. The goal of the program is to encourage such students to complete their undergraduate work in a timely manner, and encourage them to remain at Temple for their Masters graduate work. We can achieve this goal by designing undergraduate programs of study (see attached) enabling each student to complete the first three MS in IS&T Core courses (CIS 5105, CIS 5106, CIS 5107) as part of their undergraduate work.

Applicants for the ABMD with MS in IS&T (ABMD for brevity) must have completed a minimum of 83 credits toward graduation with a cumulative GPA of 3.5 and a minimum of 39 Math/CIS credits to qualify for admission to the program. All students approved to enter the ABMD will have completed the equivalent of 5 full semesters of study at Temple. The specific undergraduate courses that must be completed depend on the program of study, either Computer Science, or Information Sciences & Technology, BA or BS. Interested students must see the MS IS&T Program Coordinator to ensure they are on the right path for timely admission to the ABMD and completion of the baccalaureate degree.

Approved applicants for the ABMD will begin the ABMD program in the Fall (first semester) of their Senior year. A completed ABMD application must be on file in the CIS Department by January 15th of the previous Spring Semester. No student will be admitted to the program unless the department can verify that the applicant can complete Temple University CIS baccalaureate degree in 2 semesters following admission.

Students admitted to the ABMD are expected to complete the entire 5-year program within four contiguous semesters beginning with the first semester of their Senior Year. Students are expected to maintain full-time study status during the last two semesters of undergraduate studies and the additional year of the Master's program study. No undergraduate overloads (more than seventeen credits) will be allowed.

Students enrolled in the ABMD program must take three MS in IS&T Core courses in their Senior year and credit them toward both their undergraduate and MS in IS&T programs. At the undergraduate level, these courses may only be counted as IS&T or CS electives. Students may bring into the graduate degree program no more than 9 non-matriculated graduate credits earned in the required courses taken as undergraduates in their senior year.

Students failing to complete the baccalaureate program of study with the required coursework or to maintain a 3.5 undergraduate grade point average or to earn at least B in each of the three graduate courses within the 2 semester (Senior year) time frame will be de-enrolled from the program. However, they may continue working toward the undergraduate degree and then apply for admission to the MS in IS&T following normal procedures of the Graduate School. Graduate courses taken as an undergraduate may be counted towards their graduate program.

ABMD applicants must submit the following information.

- ABMD application
- A statement of goals of approximately 500-1,000 words (should include the following elements: your specific interest in Temple's program; your professional goals; and your academic and professional achievements)
- An up-to-date resume
- At least two letters of recommendation from information science and technology or computer science faculty

ABMD participants are expected to have a completed Graduate School application on file at the Graduate School (with a fully paid fee) by December 15th of their senior year. Letters of recommendation and the TOEFL exam score do not need to be submitted, and the GRE/GMAT exams will be waived.

Administrative information:

1. CST (CIS) will produce printed and electronic (web) information to be correct and consistent with University policies and procedures.
2. CST (CIS) will be responsible for recruiting students.
3. MS IST will work with CS and IST to determine the graduate course equivalencies for the undergraduate requirements, i.e. define CIS 5105, 5106, and 5107 as meeting the elective requirements for the undergraduate degrees. When approved, this information will be provided to the DARS office.

4. CST (CIS) will designate a program administrator who will be responsible for communicating with and tracking ABMD students from their acceptance into the program through their graduation with both degrees
5. CST will apply for a special designation code.
6. The program administrator will also be responsible for ensuring that students are coded correctly so students receive their diplomas and other information related to program.
7. Students will maintain the "U" matriculation code while an undergraduate, even though graduate courses will be coded as "G" on the undergraduate record.
8. Students will have an undergraduate GPA for both graduate and undergraduate coursework until students are coded as a "G" at the beginning of their Masters year. Students while coded as undergraduates ("U") are charged graduate course differential tuition for the graduate course.
9. Upon request, the CST Dean's Office will provide documentation that will identify the 9 credits of graduate coursework and grades earned.

10.

CIS MS in IS&T – Accelerated (4+1) Bachelors-Masters Degree Program
Undergraduate Course Prerequisites for CIS 5105, 5106, and 5107

Undergraduate CS Program Prerequisites (see also Semester Sequence Proposals 3 and 4):

Basic Prerequisites for the 4+1 Program (all three courses – CIS 5105, 5106, and 5107)

1. CIS 3207 – Introduction to Systems Programming and Operating Systems
2. Math 3033 – Probability and Statistics for Computer Science
3. CIS 3223 – Data Structures and Algorithms
4. CIS 3287 – Software Design/Practicum
5. CIS 4319 – Computer Networks and Communications
6. CIS 4331 – Principles of Database Systems

Additional Note: CIS 5106 may be waived by students who take both
CIS 3287 – Software Design/Practicum
and CIS 4398 – Writing Intensive Project in Computer Science

Undergraduate IS&T Program Prerequisites (see also Semester Sequence Proposals 1 and 2):

Basic Prerequisites for the 4+1 Program (for all three courses – CIS 5105, 5106, and 5107)

1. Math 2031 – Probability and Statistics
2. CIS 3229 – Operating Systems and Networking
3. CIS 3309 – Component-Based Software Design
4. CIS 4296 – Information Systems Analysis and Design
5. CIS 4329 – Network Architectures
6. CIS 4342 – Networked Application Systems

Additional Note: CIS 5106 maybe waived by students who take both
CIS 4296 – Information Systems Analysis and Design
and CIS 4396 – Information Systems and Implementation

***** All students waiving CIS 5106 normally would take CIS 5108 in the 2nd Semester of their Senior year, and later complete the 27 credit MS program with an additional advanced (8xxx or 9xxx) elective MS course.

Information Science & Technology Accelerated BS + MIST 4+1 Semester Sequence Proposal (1)

<p>Freshman – Fall (16 cr.) Math C077/1031 Diff&Int Calc (4 cr.) CIS New/1048 Introduction to IST (4 cr.) CIS 0067/1066 Math Concepts for Computers (4 cr.) Gen Ed Anal Read & Writing 0802 (4 cr.)</p>	<p>Freshman – Spring (17 cr.) CIS C081/1073 Comp Prog & High Level Lang (4 cr.) Gen Ed Mosaic I (3 cr.) Gen Ed US Society or Gen Ed World Society (3 cr.) Gen Ed Race (3 cr.) Elective (4 cr.)</p>
<p>Sophomore – Fall (17 cr.) CIS 0083/2173 Object-Oriented Programming (4 cr.) Math 0133/2031 Probability and Statistics (3 cr.) Science Sequence I (4 cr.) Gen Ed Mosaic II (3 cr.) Gen Ed Behavior (3 cr.)</p>	<p>Sophomore – Spring (16 cr.) CIS 0109/2109 Database and File Mgmt Systems (4 cr.) CIS 0230/3229 Operating Sys and Networking (4 cr.) Science Sequence II (4 cr.) CIS Elective (4 cr.)</p>
<p>Junior –Fall (17 cr.) CIS 4309/3309 Component-Based Software Design (4cr.) CIS W281/4296 Info Sys Analysis and Design (4 cr.) CIS Elective (4 cr.) CIS Elective (4 cr.) Elective (1 cr.)</p>	<p>Junior – Spring + MIST (14 cr.) CIS 0330/4329 Network Architectures (4 cr.) CIS 0342/4342 Networked Application Sys (4 cr.) CIS Elective (4 cr.) Elective (2 cr.)</p>
<p>Senior – Fall + MIST (13 cr.) CIS W381/4396 Info Systems Implementation (3 cr.) *CIS 5105 IT Process Management (3 cr.) Gen Ed World Society or Gen Ed US Society (3 cr.) Elective (4 cr.)</p>	<p>Senior – Spring + MIST (13 cr.) *CIS 5106 or 5108+ *CIS 5107 Computer Sys Security & Privacy (3 cr.) Gen Ed Arts (3-4 cr.) Elective (4-3 cr.)</p>

UNDERGRADUATE

+Students who have completed CIS 4296 and 4396 may waive CIS 5106 which would be replaced with an additional MS in IS&T elective so as to ensure the student meets the 27-credit requirement for the degree.

Information Science & Technology BS credits: 66 + 8 = 74

*MIST credits: 9

Credits in General Education: 25-26

Elective credits UG: 15-14

Total credits: 123

<p>MIST– Fall (9 cr.) *MIST courses (9 cr.)</p>	<p>MIST– Spring (9 cr.) *MIST courses (9 cr.)</p>
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GRADUATE

*MIST credits: 9+18 = 27

Total credits: 27

Information Science & Technology Accelerated BA + MIST 4+1 Semester Sequence Proposal (2)

<p>Freshman – Fall (16 cr.) Math C077/1031 Diff&Int Calc (4 cr.) CIS New/1048 Introduction to IST (4 cr.) CIS new/1066 Math Concepts for Computers (4 cr.) Gen Ed Anal Read & Writing 0802 (4 cr.)</p>	<p>Freshman – Spring (17 cr.) CIS C081/1073 Comp Prog & High Level Lang (4 cr.) Gen Ed Mosaic I (3 cr.) Gen Ed US Society or Gen Ed World Society (3 cr.) Gen Ed Race (3 cr.) Elective (4 cr.)</p>
<p>Sophomore – Fall (17 cr.) CIS 0083/2173 Object-Oriented Programming (4 cr.) Math 0133/2031 Probability and Statistics (3 cr.) Science I (4 cr.) Gen Ed Mosaic II (3 cr.) Gen Ed World Society or Gen Ed US Society (3 cr.)</p>	<p>Sophomore – Spring (16 cr.) CIS 0109/2109 Database and File Mgmt Systems (4 cr.) CIS 0230/3229 Operating Sys and Networking (4 cr.) Science II (4 cr.) Gen Ed Arts (3-4 cr.) Elective (1-0 cr.)</p>
<p>Junior – Fall (17 cr.) CIS 4309/3309 Component-Based Software Design (4 cr.) CIS W281/4296 Info Sys Analysis and Design (4 cr.) Gen Ed Behavior (3 cr.) Elective (6 cr.)</p>	<p>Junior – Spring + MIST (14 cr.) CIS 0330/4329 Network Architectures (4 cr.) CIS 0342/4342 Networked Application Sys (4 cr.) Elective (6 cr.)</p>
<p>Senior – Fall + MIST (13 cr.) CIS W381/4396 Info Systems Implementation (3 cr.) *CIS 5105 IT Process Management (3 cr.) Elective (7 cr.)</p>	<p>Senior – Spring + MIST (13 cr.) *CIS 5106 or 5108+ *CIS 5107 Comp Systems Security & Privacy (3 cr.) Elective (7 cr.)</p>

UNDERGRADUATE

+Students who have completed CIS 4296 and 4396 may waive CIS 5106 which would be replaced with an additional MS in IS&T elective so as to ensure the student meets the 27-credit requirement for the degree.

Information Science & Technology BA credits: 50 + 8 = 58

*MIST credits: 9

Credits in General Education: 25-26

Elective credits UG: 31-30

Total credits: 123

<p>MIST– Fall (9 cr.) *MIST courses (9 cr.)</p>	<p>MIST– Spring (9 cr.) *MIST courses (9 cr.)</p>
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GRADUATE

*MIST credits: 9+18 = 27

Total credits: 27

Computer Science BS + MIST 4+1 Semester Sequence Proposal (3)

(if desired, adjustments similar to those made for the BA + MIST can be made here too)

<p>Freshman – Fall (16 cr.) Math C085/1041 Calculus I (4 cr.) CIS 1001 (New) Introduction to CS Academics (1 cr.) CIS 0067/1068 Program Design & Abstraction (4 cr.) Gen Ed Anal Read & Writing 0802 (4 cr.) Gen Ed Behavior (3 cr.)</p>	<p>Freshman – Spring (17 cr.) Math 0086/1042 Calculus II (4 cr.) CIS 0068/2168 Data Structures (4 cr.) Gen Ed Mosaic I (3 cr.) Gen Ed Race (3 cr.) Gen Ed US Society or Gen Ed World Society (3 cr.)</p>
<p>Sophomore – Fall (17 cr.) CIS C066/1166 Math Concepts in Computing I (4 cr.) or Math W141/2196 Basic Concepts of Math (3 cr.) CIS 0072/2107 Comp Sys & Low-Level Prog (4 cr.) Science I (4 cr.) Gen Ed Mosaic II (3 cr.) Elective (2-3 cr.)</p>	<p>Sophomore – Spring (17 cr.) CIS 0207/3207 Intro to Sys Prog & Op Sys (4 cr.) CIS Theory elective (3-4 cr.) Math 3033 (New) Probability and Stats for CS (4 cr.) Science II (4 cr.) Elective (1 cr.)</p>
<p>Junior – Fall (16 cr.) CIS 0223/3223 Data Structures and Algorithms (4 cr.) Gen Ed Arts (3-4 cr.) Engl W102/2696 Technical Writing (3 cr.) Elective (6-5 cr.)</p>	<p>Junior – Spring + MIST (15 cr.) CIS 3287 (New) Software Design/Practicum (4 cr.) *CIS 0320/4319 Computer Networks & Comm (4 cr.) *CIS 0331/4331 Principles of Database Sys (4 cr.) Gen Ed World Society or Gen Ed US Society (3 cr.)</p>
<p>Senior – Fall + MIST (13 cr.) CIS new/4397 Independent Research in Cmp Sci (4cr) or CIS new/4398 Projects in Computer Science (4cr) CIS Elective (4 cr.) ** CIS 5105 IT Process Management (3 cr.) Elective (2 cr.)</p>	<p>Senior – Spring + MIST (12 cr.) ** CIS 5106 or 5108+ ** CIS 5107 Computer Sys Security & Privacy (3 cr.) Elective (6 cr.)</p>

UNDERGRADUATE

+Students who have completed CIS 3287 and 4397 may waive CIS 5106 which would be replaced with an additional MS in IS&T elective so as to ensure the student meets the 27-credit requirement for the degree.

Computer Science BS credits (including *Prerequisite courses for MIST): 67-72

**MIST credits: 9

Credits in General Education: 25-26

Elective credits UG: 22-16

Total credits: 123

<p>MIST– Fall (9 cr.) **MIST courses (9 cr.)</p>	<p>MIST– Spring (9 cr.) **MIST courses (9 cr.)</p>
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GRADUATE

**MIST credits: 9+18 = 27

Total credits: 27

Computer Science Accelerated BA + MIST 4+1 Semester Sequence Proposal (4)

<p>Freshman – Fall (16 cr.) Math C085/1041 Calculus I (4 cr.) CIS 1001 (New) Introduction to CS Academics (1 cr.) CIS 0067/1068 Program Design & Abstraction (4 cr.) Gen Ed Anal Read & Writing 0802 (4 cr.) Gen Ed Behavior (3 cr.)</p>	<p>Freshman – Spring (17 cr.) Math 0086/1042 Calculus II (4 cr.) CIS 0068/2168 Data Structures (4 cr.) Gen Ed Mosaic I (3 cr.) Gen Ed Race (3 cr.) Gen Ed US Society or Gen Ed World Society (3 cr.)</p>
<p>Sophomore – Fall (17 cr.) CIS C066/1166 Math Concepts in Computing I (4 cr.) or Math W141/2196 Basic Concepts of Math (3 cr.) CIS 0072/2107 Comp Sys & Low-Level Prog (4 cr.) Science I (4 cr.) Gen Ed Mosaic II (3 cr.) Elective (2-3 cr.)</p>	<p>Sophomore – Spring (17 cr.) CIS 0207/3207 Intro to Sys Prog & Op Sys (4 cr.) Engl W102/2696 Technical Writing (3 cr.) Science II (4 cr.) Elective (4 cr.) Elective (2 cr.)</p>
<p>Junior – Fall (16 cr.) CIS 0223/3223 Data Structures and Algorithms (4 cr.) Math 3033 (New) Probability and Stats for CS (4 cr.) *CIS 0320/4319 Computer Networks & Comm (4 cr.) Gen Ed Arts (3-4 cr.) Elective (1-0 cr.)</p>	<p>Junior – Spring + MIST (15 cr.) *CIS 0331/4331 Principles of Database Sys (4cr.) CIS 3287 (New) Software Design/Practicum (4 cr.) Gen Ed World Society or Gen Ed US Society (3 cr.) Elective (4 cr.)</p>
<p>Senior – Fall + MIST (13 cr.) CIS new/4397 Independent Research in Cmp Sci (4cr) or CIS new/4398 Projects in Computer Science(4cr) **CIS 5105 IT Process Management (3 cr.) Elective (6 cr.)</p>	<p>Senior – Spring + MIST (12 cr.) **CIS 5106 or 5108+ **CIS 5107 Computer Sys Security & Privacy (3 cr.) Elective (6 cr.)</p>

UNDERGRADUATE

+Students who have completed CIS 3287 and 4397 may waive CIS 5106 which would be replaced with an additional MS in IS&T elective so as to ensure the student meets the 27-credit requirement for the degree.

Computer Science BA credits: 55-56

*Additional Prerequisite courses for MIST: 8 (CIS 4319 and 4331)

**MIST credits: 9

Credits in General Education: 25-26

Elective credits UG: 26-24

Total credits: 123

<p>MIST– Fall (9 cr.) **MIST courses (9 cr.)</p>	<p>MIST– Spring (9 cr.) **MIST courses (9 cr.)</p>
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GRADUATE

**MIST credits: 9+18 = 27

Total credits: 27