

INTO MASON: ENGINEERING GRADUATE PATHWAYS

Banner Code: IN-MS-P012

Requirements

Graduate International Pathways to master's degrees in the Volgenau School of Engineering

INTO Mason provides sixteen Graduate International Pathways for international students to enter various graduate degrees in the Volgenau School of Engineering (VSE) at George Mason University. The pathways give students the academic foundation, essential language skills, and cultural knowledge to successfully move on to their master's degree programs. For most students, enrolling in a Graduate International Pathway will add one or two additional semesters to their overall master's degree program.

The following are the available Graduate International Pathways at INTO Mason to degrees in the Volgenau School of Engineering at GMU:

- Applied Information Technology
- Bioengineering
- Biostatistics
- Civil and Infrastructure Engineering
- Computer Engineering
- Computer Science
- Data Analytics Engineering
- Digital Forensics and Cyber Analysis
- Electrical Engineering
- Information Security and Assurance
- Information Systems
- Operations Research
- Software Engineering
- Statistical Science
- Systems Engineering
- Telecommunications

The following are the types of pathways available:

- **One Term pathways (Accelerated):** These pathways lead students through their first semester of graduate school. Upon completion of all matriculation requirements, students will move on to their degree-seeking program often with several graduate credits completed as determined by the graduate degree program. All VSE pathways have one-term pathway options available.
- **Two Term pathways (Standard):** These pathways lead students through their first year of graduate school. Upon completion of all matriculation requirements, students will move on to their degree-seeking program often with several graduate credits completed as determined by the graduate degree program. All but one of the 16 VSE pathways have two-term pathway options available (all except Digital Forensics and Cyber Analysis).
- **Bridge pathways:** These pathways provide foundational coursework designed to substitute for an additional year of undergraduate academic coursework, to render students with three-year

baccalaureate degrees eligible to move on to their graduate degree programs. Students will often move on to those degree-seeking programs with several graduate credits completed as determined by the graduate degree program. Thirteen (13) of the sixteen (16) VSE pathways have Bridge pathway options available (all except Digital Forensics and Cyber Analysis, Operations Research, and Systems Engineering).

Graduate International Pathways are designed for international students who:

- Need further English language development. Students who require a moderate amount of English language support can enter all available Graduate International Pathways to strengthen their language proficiency and ensure their long-term academic success
- Require a fourth year of undergraduate study. Students who hold three-year baccalaureate degrees that are not formally evaluated as equivalent to a four-year U.S. bachelor's degree may enter many Graduate International Pathways. For these students, their pathway acts as a "bridge" enhancing their international educational background with academic coursework to meet the eligibility for admission
- Fall short of meeting the minimum GPA or admission test score requirements
- Need to improve study skills for success in their chosen field of study
- Any or all of the above

Administered through INTO Mason in partnership with the academic units across the university, the courses in the Graduate International Pathways are taught by highly qualified Mason instructional faculty members and supported by International Pathways academic advisors.

Students enrolled in any Graduate International Pathway should review the program's student guidebook for specific details related to program requirements and expectations.

Program Requirements

The following Graduate International Pathways are offered by INTO Mason in collaboration with the Volgenau School of Engineering:

Applied Information Technology Graduate Pathway The following grid is for the first semester of the standard, 2-semester pathway into the Master's of Science in Applied Information Technology degree:

Code	Title	Credits
Standard semester 1 of 2		
EAP 506	Graduate Communication in the Disciplines I	4
INYO 501	Graduate Transitions for International Students I	2
Language Support Course ¹		0-2
Required Major Course(s): ²		3-6
AIT 502	Programming Essentials	
AIT 512	Algorithms and Data Structures Essentials	
AIT 524	Database Management Systems	

AIT 542	Fundamentals of Computing Platforms
Total Credits	9-14

¹ Students will be assigned a second major course by the program on the basis of English language placement results upon arrival. The second major course will be assigned if student places into the equivalent of AE Level 6 (or higher) and the type of language support course will be adjusted accordingly.

² AIT 512, 524, and 542 can be taken in any order so it will depend on which ones are offered in a given semester and if the student has the requisite knowledge to take them. AIT 502 will be required in addition to these courses if the student does not have all of the necessary skills in programming languages such as Java to take the higher-level AIT courses. These courses are sometimes delivered online and may be restricted when students are in the Pathway program.

The following grid is for the second semester of the standard, 2-semester pathway into the Master's of Science in Applied Information Technology degree:

Code	Title	Credits
Standard semester 2 of 2		
EAP 507	Graduate Communication in the Disciplines II	4
INYO 502	Graduate Transitions for International Students II	2
Language Support Course ¹		0
Required Major Courses ²		6
AIT 502	Programming Essentials	
AIT 512	Algorithms and Data Structures Essentials	
AIT 524	Database Management Systems	
AIT 542	Fundamentals of Computing Platforms	
Total Credits		12

¹ Continuing students may be required to take an additional language support course.

² AIT 512, 524, and 542 can be taken in any order so it will depend on which ones are offered in a given semester and if the student has the requisite knowledge to take them. AIT 502 will be required in addition to these courses if the student does not have all of the necessary skills in programming languages such as Java to take the higher-level AIT courses. These courses are sometimes delivered online and may be restricted when students are in the Pathway program.

The following grid is for the single semester of the accelerated, 1-semester pathway into the Master's of Science in Applied Information Technology degree:

Code	Title	Credits
Accelerated semester 1 of 1		
EAP 508	Graduate Communication in the Disciplines III	4
INYO 504	Accelerated Graduate Transitions for International Students	3
Language Support Course ¹		0
Required Major Courses: ²		6
AIT 502	Programming Essentials	
AIT 512	Algorithms and Data Structures Essentials	

AIT 524	Database Management Systems
AIT 542	Fundamentals of Computing Platforms
Total Credits	13

¹ One-semester (Accelerated) students will be placed into language support courses depending on their entrance test scores when they arrive.

² AIT 512, 524, and 542 can be taken in any order so it will depend on which ones are offered in a given semester and if the student has the requisite knowledge to take them. AIT 502 will be required in addition to these course if the student does not have all of the necessary skills in programming languages such as Java to take the higher-level AIT courses. These courses are sometimes delivered online and may be restricted when students are in the Pathway program.

The following grid is for the first semester of the Bridge, 2-semester pathway into the Master's of Science in Applied Information Technology degree for students with certain 3-year degrees:

Code	Title	Credits
Bridge semester 1 of 2		
EAP 506	Graduate Communication in the Disciplines I	4
INYO 501	Graduate Transitions for International Students I	2
Upper-level Undergraduate Mason Core Course ¹		3
Required Major Courses ²		3
AIT 502	Programming Essentials	
AIT 512	Algorithms and Data Structures Essentials	
AIT 524	Database Management Systems	
AIT 542	Fundamentals of Computing Platforms	
Total Credits		12

¹ Bridge students will take two upper-level undergraduate Mason Core courses instead of or in addition to select Pathway and/or major courses, one in each semester of the pathway. These two courses substitute for a "fourth year" of undergraduate study as is required by American colleges and universities.

² AIT 512, 524, and 542 can be taken in any order so it will depend on which ones are offered in a given semester and if the student has the requisite knowledge to take them. AIT 502 will be required in addition to these courses if the student does not have all of the necessary skills in programming languages such as Java to take the higher-level AIT courses. These courses are sometimes delivered online and may be restricted when students are in the Pathway program.

The following grid is for the second semester of the Bridge, 2-semester pathway into the Master's of Science in Applied Information Technology degree for students with certain 3-year degrees:

Code	Title	Credits
Bridge semester 2 of 2		
EAP 507	Graduate Communication in the Disciplines II	4
INYO 502	Graduate Transitions for International Students II	2
Upper-level Undergraduate Mason Core Course ¹		3

Required Major Course ²	3
AIT 502	Programming Essentials
AIT 512	Algorithms and Data Structures Essentials
AIT 524	Database Management Systems
AIT 542	Fundamentals of Computing Platforms
Total Credits	12

¹ Bridge students will take two upper-level undergraduate Mason Core courses instead of or in addition to select Pathway and/or major courses, one in each semester of the pathway. These two courses substitute for a "fourth year" of undergraduate study as is required by American colleges and universities.

² AIT 512, 524, and 542 can be taken in any order so it will depend on which ones are offered in a given semester and if the student has the requisite knowledge to take them. AIT 502 will be required in addition to these courses if the student does not have all of the necessary skills in programming languages such as Java to take the higher-level AIT courses. These courses are sometimes delivered online and may be restricted when students are in the Pathway program.

Bioengineering Graduate Pathway

The following grid is for the first semester of the standard, 2-semester pathway into the Master's of Science in Bioengineering degree:

Code	Title	Credits
Standard semester 1 of 2		
EAP 506	Graduate Communication in the Disciplines I	4
INYO 501	Graduate Transitions for International Students I	2
Language Support Course ¹		0-2
Required Major Course(s): ²		3-6
BENG 525	Neural Engineering	
BENG 538	Medical Imaging	
BENG 541	Biomaterials	
BENG 550	Advanced Biomechanics	
Total Credits		9-14

¹ Students will be assigned a second major course by the program on the basis of English language placement results upon arrival. The second major course will be assigned if student places into the equivalent of AE Level 6 (or higher) and the type of language support course will be adjusted accordingly.

² BENG 525, 538, 541, and 550 can be taken in any order so it will depend on which ones are offered in a given semester.

The following grid is for the second semester of the standard, 2-semester pathway into the Master's of Science in Bioengineering degree:

Code	Title	Credits
Standard semester 2 of 2		
EAP 507	Graduate Communication in the Disciplines II	4
INYO 502	Graduate Transitions for International Students II	2
Language Support Course ¹		0

Required Major Courses: ²	6
BENG 525	Neural Engineering
BENG 538	Medical Imaging
BENG 541	Biomaterials
BENG 550	Advanced Biomechanics
Total Credits	12

¹ Continuing students may be required to take an additional language support course.

² BENG 525, 538, 541, and 550 can be taken in any order so it will depend on which ones are offered in a given semester.

The following grid is for the single semester of the accelerated, 1-semester pathway into the Master's of Science in Bioengineering degree:

Code	Title	Credits
Accelerated semester 1 of 1		
EAP 508	Graduate Communication in the Disciplines III	4
INYO 504	Accelerated Graduate Transitions for International Students	3
Language Support Course ¹		0
Required Major Courses: ²		6
BENG 525	Neural Engineering	
BENG 538	Medical Imaging	
BENG 541	Biomaterials	
BENG 550	Advanced Biomechanics	
Total Credits		13

¹ One-semester (Accelerated) students will be placed into language support courses depending on their entrance test scores when they arrive.

² BENG 525, 538, 541, and 550 can be taken in any order so it will depend on which ones are offered in a given semester.

The following grid is for the first semester of the Bridge, 2-semester pathway into the Master's of Science in Bioengineering degree for students with certain 3-year degrees:

Code	Title	Credits
Bridge semester 1 of 2		
EAP 506	Graduate Communication in the Disciplines I	4
INYO 501	Graduate Transitions for International Students I	2
Upper-level Undergraduate Mason Core Course ¹		3
Required Major Course: ²		3
BENG 525	Neural Engineering	
BENG 538	Medical Imaging	
BENG 541	Biomaterials	
BENG 550	Advanced Biomechanics	
Total Credits		12

¹ Bridge students will take two upper-level undergraduate Mason Core courses instead of or in addition to select Pathway and/or major courses, one in each semester of the pathway. These two courses substitute for a "fourth year" of undergraduate study as is required by American colleges and universities.

² BENG 525, 538, 541, and 550 can be taken in any order so it will depend on which ones are offered in a given semester.

The following grid is for the second semester of the Bridge, 2-semester pathway into the Master's of Science in Bioengineering degree for students with certain 3-year degrees:

Code	Title	Credits
Bridge semester 2 of 2		
EAP 507	Graduate Communication in the Disciplines II	4
INYO 502	Graduate Transitions for International Students II	2
Upper-level Undergraduate Mason Core Course ¹		3
Required Major Course: ²		3
BENG 525	Neural Engineering	
BENG 538	Medical Imaging	
BENG 541	Biomaterials	
BENG 550	Advanced Biomechanics	
Total Credits		12

¹ Bridge students will take two upper-level undergraduate Mason Core courses instead of or in addition to select Pathway and/or major courses, one in each semester of the pathway. These two courses substitute for a "fourth year" of undergraduate study as is required by American colleges and universities.

² BENG 525, 538, 541, and 550 can be taken in any order so it will depend on which ones are offered in a given semester.