Cybersecurity (Collaborative Specialization)

This section presents the requirements for programs in:

- M.C.S. Computer Science with Collaborative Specialization in Cybersecurity
- M.A.Sc. Electrical and Computer Engineering with Collaborative Specialization in Cybersecurity
- M.Eng. Electrical and Computer Engineering with Collaborative Specialization in Cybersecurity
- M.Eng. Infrastructure Protection and International Security with Collaborative Specialization in Cybersecurity
- M.A.Sc. Digital Media with Collaborative Specialization in Cybersecurity
- Master of Networking Technology with Collaborative Specialization in Cybersecurity
- M. Infrastructure Protection and International Security with Collaborative Specialization in Cybersecurity
- M.A. International Affairs with Collaborative Specialization in Cybersecurity

Program Requirements

M.C.S. Computer Science with Collaborative Specialization in Cybersecurity (5.0 credits)

Requirements - Thesis pathway (5.0 credits)

1.	1.0 credit in:		1.0
	CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	
2.	1.5 credits in cours	se work. Course work must include a	1.5

minimum of 1.5 credits of OCICS courses in three different research areas (see OCICS course listing by research areas).

3. 2.5 credits in graduate thesis (Each candidate 2.5

submitting a thesis will be required to undertake an oral defence of the thesis).

COMP 5905 [2.5] M.C.S. Thesis (in the area of the

specialization)

Total Credits 5.0

Requirements - Non-Thesis pathway (5.0 credits)

1. 1.0 credit in:		1.0
CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	

- 2. 3.0 credits in course work. Course work must include a minimum of 1.5 credits of OCICS courses in three different research areas (see OCICS course listing by research areas).
- **3. 1.0 credit in** Graduate project OR additional OCICS 1.0 courses.

COMP 5903 [1.0] Graduate Project (M.C.S.) (in the area of the specialization)

OR

T (10 11)		
Total Credits		5.
	al and Computer Engineering ve Specialization in i.0 credits)	
Requirements:		
1. 1.0 credit in:		1.
CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	
3. 1.5 credits in cou	rses	1.
4. 2.5 credits in:	MAAO. There's firstly are a st	2.
SYSC 5909 [2.5]	M.A.Sc. Thesis (in the area of cybersecurity)	
Total Credits		5.
with Collaborativ Cybersecurity (4	I and Computer Engineering ve Specialization in i.5 credits) ect pathway (4.5 credits)	
nequirements - proj 1. 0.5 credit in:	ect patriway (4.5 credits)	0.
SYSC 5902 [0.5]	Research Methods for Engineers	0.
2. 1.0 credit in:	. 1959aron moniogo for Engineers	1.
CYBR 5000 [1.0]	Science and Social Science of	
	Cybersecurity	
4. 2.5 credits in cou	rses	2
5. 0.5 credit in:		0
SYSC 5900 [0.5]	Systems Engineering Project (in the area of cybersecurity)	
Total Credits		4.
Requirements - cou	rsework pathway (4.5 credits)	
1. 0.5 credit in:	rsework pathway (4.5 credits)	0.
1. 0.5 credit in: SYSC 5902 [0.5]	rsework pathway (4.5 credits) Research Methods for Engineers	
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in:	Research Methods for Engineers	
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0]	Research Methods for Engineers Science and Social Science of Cybersecurity	1.
 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 3.0 credits in coulelective in the area of 	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved	0.
 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 3.0 credits in coulelective in the area of 	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved	1.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Security Cybersecurity (5	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in 6.0 credits)	3.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Security Cybersecurity (5) Requirements - Res	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in	3.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Security Cybersecurity (5) Requirements - Res	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in i.0 credits) earch project pathway: Science and Social Science of	3.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Sewith Collaborativ Cybersecurity (5) Requirements - Resident in: CYBR 5000 [1.0]	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in i.0 credits) earch project pathway:	1. 3. 4.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Sewith Collaborativ Cybersecurity (5) Requirements - Resident in: CYBR 5000 [1.0]	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in i.0 credits) earch project pathway: Science and Social Science of	1. 3. 4.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Sewith Collaborativ Cybersecurity (5) Requirements - Res. 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in:	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in i.0 credits) earch project pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection:	1. 3. 4.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Sewith Collaborativ Cybersecurity (5) Requirements - Res. 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in: IPIS 5101 [0.5]	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in 6.0 credits) earch project pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk	1. 3. 4.
1. 0.5 credit in: SYSC 5902 [0.5] 1. 1.0 credit in: CYBR 5000 [1.0] 4. 3.0 credits in coulelective in the area of Total Credits M.Eng. Infrastruinternational Sewith Collaborativ Cybersecurity (5 Requirements - Resiling 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in: IPIS 5101 [0.5] IPIS 5105 [0.5]	Research Methods for Engineers Science and Social Science of Cybersecurity rses, including 0.5 credit in approved the specialization cture Protection and curity ve Specialization in 6.0 credits) earch project pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical	1.

4.0 and the of additional OCICC accordan

IPIS 5301 [0.5]	Disarmament, Arms Control and Nonproliferation		IPIS 5320 [0.5]	Topics in Infrastructure Security Policy	
IPIS 5302 [0.5]	Contemporary International Security		International Affairs (s from the Intelligence and IIA) and Security Defence Policy	
IPIS 5303 [0.5]	Intelligence Statecraft and International Affairs		(SDP) designated fiel School of Internation	lds offered by the Norman Paterson al Affairs.	
IPIS 5304 [0.5]	Intelligence and National Security:		4. 1.0 credit from:		1.0
IPIS 5305 [0.5]	Policies and Operations National Security Policy and Law		IPIS 5501 [0.5]	Transportation and Aviation Security	
IPIS 5306 [0.5]	Emergency and Business		IPIS 5504 [0.5]	Fundamentals of Fire Safety	
IPIS 5320 [0.5]	Continuity Management Topics in Infrastructure Security		IPIS 5505 [0.5]	Natural Hazards in Canada: Risk and Impact	
IF 13 3320 [0.3]	Policy		IPIS 5507 [0.5]	Blast Load Effects on Structures	
International Affairs (ISDP) designated field	s from the Intelligence and IIA) and Security Defence Policy Ids offered by the Norman Paterson		IPIS 5508 [0.5]	Introduction to Explosives and Explosion Effects as they relate to Infrastructure and its Components	
School of Internationa	al Affairs.		IPIS 5509 [0.5]	Introduction to Cybersecurity	
4. 1.0 credit from: IPIS 5501 [0.5]	Transportation and Aviation	1.0	IPIS 5520 [0.5]	Selected Topics in Engineering of Critical Infrastructure	
IDIO EEOA IO EL	Security Security			urse approved by the IPIS Director or	
IPIS 5504 [0.5] IPIS 5505 [0.5]	Fundamentals of Fire Safety Natural Hazards in Canada: Risk		Associate Director.	oved electives in the area of the	
	and Impact		specialization		
IPIS 5507 [0.5]	Blast Load Effects on Structures		_	raduate courses from the Faculty resign that have been selected in	0.5
IPIS 5508 [0.5]	Introduction to Explosives and Explosion Effects as they relate to Infrastructure and its Components			d approved by, the MIPIS Director and	
IPIS 5509 [0.5]	Introduction to Cybersecurity		Total Credits		5.0
IPIS 5520 [0.5]	Selected Topics in Engineering of Critical Infrastructure		M.A.Sc. Digital N	Media	
	Ontiodi illiadi actare		with Callaboration	vo Specialization in	
or an engineering cou Associate Director.	urse approved by the IPIS Director or		with Collaborati Cybersecurity (ve Specialization in 5.0 credits)	
		1.0		•	
Associate Director.	urse approved by the IPIS Director or Research Project (in the area of the	1.0	Cybersecurity (5 Requirements: 1. 1.0 credit in:	5.0 credits)	1.0
Associate Director. 5. 1.0 credit in:	urse approved by the IPIS Director or	5.0	Cybersecurity (5 Requirements:	•	1.0
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits	Research Project (in the area of the specialization)		Cybersecurity (5 Requirements: 1. 1.0 credit in:	5.0 credits) Science and Social Science of	1.0
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou	Research Project (in the area of the specialization)	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0]	5.0 credits) Science and Social Science of	1.0
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in:	Research Project (in the area of the specialization)		Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in:	Science and Social Science of Cybersecurity Information Technology Seminars	1.0
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0]	Research Project (in the area of the specialization)	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0]	Science and Social Science of Cybersecurity Information Technology Seminars	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in:	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0]	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5002 [0.5] ITEC 5200 [0.5] ITEC 5201 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection:	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5002 [0.5] ITEC 5200 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information Technology Research Entertainment Technologies	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in: IPIS 5101 [0.5]	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from control [1.0] ITEC 5002 [0.5] ITEC 5200 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in: IPIS 5101 [0.5] IPIS 5105 [0.5]	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5002 [0.5] ITEC 5200 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies	
Associate Director. 5. 1.0 credit in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical	5.0	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5200 [0.5] ITEC 5200 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars one courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques	
Associate Director. 5. 1.0 credit in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5200 [0.5] ITEC 5200 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars one courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in: IPIS 5101 [0.5] IPIS 5105 [0.5] IPIS 5106 [0.5] 3. 1.0 credit from: IPIS 5104 [0.5]	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and Nonproliferation	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5200 [0.5] ITEC 5200 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5] ITEC 5205 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars one courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-Intensive Applications Data Protection and Rights	
Associate Director. 5. 1.0 credit in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and Nonproliferation Contemporary International Security	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5200 [0.5] ITEC 5200 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5] ITEC 5205 [0.5] ITEC 5206 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-Intensive Applications Data Protection and Rights Management	
Associate Director. 5. 1.0 credit in: IPIS 5907 [1.0] Total Credits Requirements - Cou 1. 1.0 credit in: CYBR 5000 [1.0] 2. 1.5 credits in: IPIS 5101 [0.5] IPIS 5105 [0.5] IPIS 5106 [0.5] 3. 1.0 credit from: IPIS 5104 [0.5] IPIS 5301 [0.5]	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and Nonproliferation Contemporary International	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from control [0.5] ITEC 5200 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5] ITEC 5205 [0.5] ITEC 5206 [0.5] ITEC 5207 [0.5] ITEC 5208 [0.5] ITEC 5209 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars one courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-Intensive Applications Data Protection and Rights Management Data Interaction Techniques Virtual Reality and 3D User Interfaces Empirical Research Methods in HCI	
Associate Director. 5. 1.0 credit in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and Nonproliferation Contemporary International Security Intelligence Statecraft and International Affairs Intelligence and National Security:	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5202 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5] ITEC 5205 [0.5] ITEC 5206 [0.5] ITEC 5207 [0.5] ITEC 5208 [0.5] ITEC 5209 [0.5] ITEC 5209 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars ore courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-Intensive Applications Data Protection and Rights Management Data Interaction Techniques Virtual Reality and 3D User Interfaces	1.5
Associate Director. 5. 1.0 credit in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and Nonproliferation Contemporary International Security Intelligence Statecraft and International Affairs Intelligence and National Security: Policies and Operations	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5202 [0.5] ITEC 5202 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5] ITEC 5205 [0.5] ITEC 5206 [0.5] ITEC 5206 [0.5] ITEC 5207 [0.5] ITEC 5208 [0.5] ITEC 5209 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars one courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-Intensive Applications Data Protection and Rights Management Data Interaction Techniques Virtual Reality and 3D User Interfaces Empirical Research Methods in HCI Special Topics in Digital Media	
Associate Director. 5. 1.0 credit in:	Research Project (in the area of the specialization) Irsework pathway: Science and Social Science of Cybersecurity Critical Infrastructure Protection: Issues and Strategies Critical Infrastructure Risk Assessment Management of Critical Infrastructure Terrorism and International Security Disarmament, Arms Control and Nonproliferation Contemporary International Security Intelligence Statecraft and International Affairs Intelligence and National Security:	5.0 1.0 1.5	Cybersecurity (5 Requirements: 1. 1.0 credit in: CYBR 5000 [1.0] 2. 0.0 credit in: ITEC 5001 [0.0] 3. 1.5 credit from co ITEC 5202 [0.5] ITEC 5201 [0.5] ITEC 5202 [0.5] ITEC 5203 [0.5] ITEC 5204 [0.5] ITEC 5205 [0.5] ITEC 5206 [0.5] ITEC 5207 [0.5] ITEC 5208 [0.5] ITEC 5209 [0.5] ITEC 5209 [0.5]	Science and Social Science of Cybersecurity Information Technology Seminars one courses: Fundamentals of Information Technology Research Entertainment Technologies Computer Animation Technologies Visual Effects Technologies Game Design and Development Technologies Emerging Interaction Techniques Design and Development of Data-Intensive Applications Data Protection and Rights Management Data Interaction Techniques Virtual Reality and 3D User Interfaces Empirical Research Methods in HCI	1.5

Master of Networking Technology with Collaborative Specialization in Cybersecurity (5.0 credits)

Requirements:

То	tal Credits		5.0
СО	nsultation with your	ves at the 5000-level, chosen in graduate advisor/supervisor or the craduate Studies in the School.	1.5
by Gr	the graduate supervaduate Studies in the		0.5
	ITEC 5910 [0.5]	Special Topics in Network Technologies	
	ITEC 5205 [0.5]	Design and Development of Data- Intensive Applications	
	ITEC 5103 [0.5]	Cloud and Datacentre Networking	
	ITEC 5102 [0.5]	Designing Secure Networking and Computer Systems	
	ITEC 5101 [0.5]	Cross Layer Design for Wireless Multimedia Networks	
	ITEC 5100 [0.5]	Planning and Design of Computer Networks	
3.	2.0 credits from co	re courses:	2.0
	ITEC 5001 [0.0]	Information Technology Seminars	
2.	0.0 credit in:		
	CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	
1.	1.0 credit in:		1.0

M. Infrastructure Protection and International Security with Collaborative Specialization in Cybersecurity (5.0 credits)

Requirements:

1.	1.0 credit in:		1.0
	CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	
2.	2.0 credits in:		2.0
	IPIS 5101 [0.5]	Critical Infrastructure Protection: Issues and Strategies	
	IPIS 5103 [0.5]	Infrastructure Engineering Principles	
	IPIS 5105 [0.5]	Critical Infrastructure Risk Assessment	
	IPIS 5106 [0.5]	Management of Critical Infrastructure	
3.	1.0 credit from:		1.0
	IPIS 5104 [0.5]	Terrorism and International Security	
	IPIS 5301 [0.5]	Disarmament, Arms Control and Nonproliferation	
	IPIS 5302 [0.5]	Contemporary International Security	
	IPIS 5303 [0.5]	Intelligence Statecraft and International Affairs	
	IPIS 5304 [0.5]	Intelligence and National Security: Policies and Operations	
	IPIS 5305 [0.5]	National Security Policy and Law	
	IPIS 5306 [0.5]	Emergency and Business Continuity Management	

IPIS 5320 [0.5]	Topics in Infrastructure Security
	Policy

Or 5000-level courses from the IIA or SDP designated fields offered by the Norman Paterson School of International Affairs.

4. 0.5 credit from:		0.5
IPIS 5501 [0.5]	Transportation and Aviation Security	
IPIS 5504 [0.5]	Fundamentals of Fire Safety	
IPIS 5505 [0.5]	Natural Hazards in Canada: Risk and Impact	
IPIS 5507 [0.5]	Blast Load Effects on Structures	
IPIS 5508 [0.5]	Introduction to Explosives and Explosion Effects as they relate to Infrastructure and its Components	
IPIS 5509 [0.5]	Introduction to Cybersecurity	
IPIS 5520 [0.5]	Selected Topics in Engineering of Critical Infrastructure	
selected in consultatio	ve in the area of the specialization, n with, and approved by, the MIPIS e Director and associated faculty	0.5

M.A. International Affairs with Collaborative Specialization in Cybersecurity (5.0 credits)

Requirements - Thesis pathway

when necessary.

Total Credits

Total Credits

	,	
1. 1.0 credit in:		1.0
CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	
2. 1.5 credits in:		1.5
INAF 5015 [0.5]	Research Design and Methods for International Affairs	
INAF 5016 [0.5]	Statistical Analysis for International Affairs	
INAF 5017 [0.25]	International Policymaking in Canada: Structure and Process	
INAF 5018 [0.25]	Law and International Affairs	
	omics, successfully completed by the n, from (See Note 1, below):	0.5
INAF 5009 [0.5]	International Aspects of Economic Development	
INAF 5205 [0.5]	Economics of Conflict	
INAF 5214 [0.5]	Economics for Defence and Security	
INAF 5221 [0.5]	Economics of Security and Intelligence	
INAF 5308 [0.5]	International Trade: Theory and Policy	
INAF 5309 [0.5]	International Finance: Theory and Policy	
INAF 5600 [0.5]	The Economics of Human Development	
INAF 5703 [0.5]	International Public Economics	
4. 2.0 credits in:		2.0
INAF 5909 [2.0]	M.A. Thesis (in the specialization)	
Successful complet examination (See Note	ion of second language proficiency e 3, below)	

5.0

5.0

	equirements - Rese	earch essay pathway:	
1.	1.0 credit in:		1.0
	CYBR 5000 [1.0]	Science and Social Science of Cybersecurity	
2.	1.5 credit in:		1.5
	INAF 5015 [0.5]	Research Design and Methods for International Affairs	
	INAF 5016 [0.5]	Statistical Analysis for International Affairs	
	INAF 5017 [0.25]	International Policymaking in Canada: Structure and Process Law and International Affairs	
2	INAF 5018 [0.25]	mics, successfully completed by the	0.5
	nd of the second term	n, from: (See Note 1, below)	0.5
	INAF 5009 [0.5]	International Aspects of Economic Development	
	INAF 5205 [0.5]	Economics of Conflict	
	INAF 5214 [0.5]	Economics for Defence and Security	
	INAF 5221 [0.5]	Economics of Security and Intelligence	
	INAF 5308 [0.5]	International Trade: Theory and Policy	
	INAF 5309 [0.5]	International Finance: Theory and Policy	
	INAF 5600 [0.5]	The Economics of Human Development	
	INAF 5703 [0.5]	International Public Economics	
4.	1.0 credit in:		1.0
	INAF 5908 [1.0]	Research Essay (in the specialization)	
	1.0 credits in Field elow)	and Elective courses (See Note 2,	1.0
6			
	Successful complete camination (see Note	ion of second language proficiency e 3, below)	
ex			5.0
To	amination (see Note		5.0
To	amination (see Note	e 3, below)	5.0
To	amination (see Note otal Credits equirements - Cour	e 3, below)	
To Ro	tamination (see Note otal Credits equirements - Cour 1.0 credit in:	sework pathway (5.0 credits) Science and Social Science of	
To Ro	camination (see Note otal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0]	sework pathway (5.0 credits) Science and Social Science of	1.0
To Ro	camination (see Note otal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in:	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International	1.0
To Ro	tamination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5]	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in	1.0
7 Ro 1.	camination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5017 [0.25] INAF 5018 [0.25] 0.5 credit in econo	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process	1.0
7 Ro 1.	camination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5017 [0.25] INAF 5018 [0.25] 0.5 credit in econo	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process Law and International Affairs smics, successfully completed by the	1.0
7 Ro 1.	camination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5017 [0.25] INAF 5018 [0.25] 0.5 credit in econo d of the second term	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process Law and International Affairs prics, successfully completed by the in, from: (See Note 1, below) International Aspects of Economic	1.0
E) To R(1. 2. 3.	tamination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5017 [0.25] INAF 5018 [0.25] 0.5 credit in econor of the second term INAF 5009 [0.5]	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process Law and International Affairs International Aspects of Economic Development	1.0
7 Ro 1.	tamination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5017 [0.25] INAF 5018 [0.25] 0.5 credit in econo of the second term INAF 5009 [0.5]	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process Law and International Affairs Inics, successfully completed by the in, from: (See Note 1, below) International Aspects of Economic Development Economics of Conflict Economics for Defence and	1.0
7 Ro 1.	tamination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5017 [0.25] INAF 5018 [0.25] 0.5 credit in econol of the second term INAF 5009 [0.5] INAF 5205 [0.5] INAF 5214 [0.5]	Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process Law and International Affairs International Affairs Incernational Affairs Incernational Affairs Incernational Affairs Incernational Affairs Incernational Affairs Incernational Aspects of Economic International Aspects of Economic Development Economics of Conflict Economics for Defence and Security Economics of Security and	1.0
E) To R(1. 2. 3.	tamination (see Note tal Credits equirements - Cour 1.0 credit in: CYBR 5000 [1.0] 1.0 credit in: INAF 5016 [0.5] INAF 5018 [0.25] 0.5 credit in econol of the second term INAF 5009 [0.5] INAF 5205 [0.5] INAF 5214 [0.5]	sework pathway (5.0 credits) Science and Social Science of Cybersecurity Statistical Analysis for International Affairs International Policymaking in Canada: Structure and Process Law and International Affairs mics, successfully completed by the n, from: (See Note 1, below) International Aspects of Economic Development Economics of Conflict Economics for Defence and Security Economics of Security and Intelligence International Trade: Theory and	1.0

Total Credits		5.0
6. Successful comple examination (see Not	etion of second language proficiency te 3, below)	
5. 2.0 credits in Field below)	d and Elective courses (See Note 2,	2.0
and approved by the	ses in the area of the specialization NPSIA M.A. Program Supervisor as being relevant to the student's	0.5
INAF 5703 [0.5]	International Public Economics	
INAF 5600 [0.5]	The Economics of Human Development	

- All students must complete the 0.5 credit economics course for their designated field, or an approved alternate economics course. For students in the IEP field both INAF 5308 and INAF 5309, or approved equivalent, must be completed.
- 2. For elective courses, 1.5 credits of the total required 5.0 credits may be selected from courses offered in other departments, with a maximum of 1.0 credit from a single department and a maximum of 1.0 credit selected from fourth year undergraduate courses. Any course not identified as an INAF 5000-level course must be approved by the M.A. Program Supervisor.
- 3. Students must successfully complete an examination in second language proficiency administered by Carleton University's School of Linguistics and Language Studies, or meet the equivalent standard as determined by the School of Linguistics and Language Studies. Details of the language requirement are provided on the School website.

Regulations

See the General Regulations section of this Calendar and the regulations of the participating unit.

Admission Requirements

Admission to the collaborative master's program in Cybersecurity is available to master's students who are admitted in one of the participating master's programs. To apply to one of the participating master's programs, please visit the Graduate Studies Admissions page.

Cybersecurity (CYBR) Courses

CYBR 5000 [1.0 credit]

Science and Social Science of Cybersecurity

Overview of legal, governance, and strategic considerations of cybersecurity from a Canadian and international perspective, and the computer science and engineering concepts critical to effective cybersecurity operations.