WALBROOK
Institute London

BSc (Hons) Cyber Security

Programme Specification

Contents

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General Information

UCAS Code	Award	Programme Title	Expected Duration	Study Mode
N/A	BSc (Hons)	Cyber Security **Programme Code** UK-LIBF-BACYS	3 years 4 years 6 years	Full-time Part-time 1 Part-time 2
	Exit Awards	• BSc (non-Hons) • Diploma of Higher Education • Certificate of Higher Education		

Credit Count	**360 FHEQ credits**
Awarding Institution	Walbrook Institute London
Teaching Institution	Walbrook Institute London
Delivery Modes	• Face-to-face • Blended • Online – Synchronous • Online – Asynchronous

Date of original production	October 2023	**Date of current version**	June 2024
Record of modifications			

Programme Overview

Programme Summary

In the face of an increasingly digital world, the risks posed by cyber threats are a growing concern for industries and individuals alike. As a result of this trend, the need for experts in cyber security is growing exponentially. The BSc (Hons) Cyber Security programme is designed to equip you with a comprehensive understanding of the fundamental concepts and principles in the field of cyber security, preparing you for a successful career in various industries grappling with the challenges of a rapidly evolving digital landscape.

The programme's core modules cover a wide range of topics, providing you with a well-rounded understanding of cyber security. These include topics such as mathematics, data protection, and programming languages. You will also delve into more specific areas such as cryptography, software forensics, and information security standards, among others.

The programme also offers a variety of elective modules, allowing you to explore current industry-relevant subject areas and tailor your studies to your interests and aspirations. These include cloud computing, pentesting, and IT project management.

As a graduate of this programme, you will play a pivotal role in securing critical infrastructures, protecting sensitive information, and contributing to a safer online environment for individuals, organisations, and governments.

Programme Aims

The BSc (Hons) Business Information Systems programme aims to:

- develop an in-depth knowledge and understanding of core cyber security concepts, principles, and terminology, including the importance of confidentiality, integrity, and availability of information;
- enable you to analyse, design, and implement IT security measures through the effective application of cyber security technologies, tools, and techniques;
- equip you with the skills and knowledge necessary to communicate complex cyber security concepts to both technical and non-technical stakeholders, facilitating effective collaboration and risk mitigation;
- provide you with an ethical foundation and an understanding of the legal and ethical considerations in cyber security practices; and

- encourage you to become a lifelong learner, who is committed to continuous personal and professional development, enabling you to stay current with evolving cyber threats and technologies.

Employability & Graduate Outcomes

Graduates of this programme are likely to pursue careers in a number of areas in the Cyber Security and related fields such as IT security, network administration and architecture, system analytics or application development. This programme of study supports graduates in developing the following employability skills:

- digital and technical literacy
- numerical and analytical skills
- critical thinking and problem-solving skills
- communication and collaboration skills
- professional responsibility and ethical awareness

Intended Learning Outcomes of the Programme

This programme has been developed in accordance with the QAA Subject Benchmark Statement for Bachelor's Degrees in Computing (2022).

Please note: The programme's intended learning outcomes below are described at the Bachelor with Honours level (Level 6).

On successful completion of this programme, you will be expected to:

L01 Demonstrate a critical understanding of the intricacies of computer systems, architectures, protocols, and vulnerabilities of computer networks essential for safeguarding against cyber threats.

L02 Demonstrate a systematic understanding of mathematics, statistics and data science, with a focus on cryptography, data management and analysis, and algorithms to design robust solutions to cyber security problems.

L03 Apply programming skills to develop practical solutions to challenges in real-world cyber security situations.

L04 Employ analytical skills in threat analysis and incident response scenarios within the field of cyber security.

L05 Apply a theoretical knowledge of computer science to analyse and address advanced cyber security concepts, including algorithmic complexity and program verification.

L06 Critically apply preventative, detective, and reactive cyber security strategies, adapting their approach to address evolving cyber threats, including cryptographic, system and network security techniques.

L07 Critically analyse IT security frameworks and regulations, with a focus on compliance and risk assessment in various organizational contexts.

L08 Critically assess data protection mechanisms and the security of digital assets using security techniques to uncover cyber incidents and vulnerabilities.

L09 Critically evaluate ethical and legal considerations in the field of cyber security, including ethical hacking and dilemmas related to privacy, legality, and societal impacts, to make informed decisions that uphold ethical and legal standards while addressing security challenges.

L010 Apply a range of research skills to conduct rigorous empirical, theoretical and industry-related research and address advanced cyber security issues through systematic investigation and analysis.

The Structure of the Programme

The BSc (Hons) Cyber Security programme is offered as a 3-year full-time programme or in part-time mode over a 4 or 6-year period.

The programme is divided into modules which include both compulsory and elective modules with a weighting of 15 credits each and a thesis with a weighting of 30 credits. All modules in the programme are assigned to one of three levels (L4/L5/L6) which reflect the depth of learning required in the relevant level and year of study.

To achieve a full-honours award, you need to complete modules with a combined weight of 360 credits, including the final thesis.

Table 1: Structure of the Programme

Module Code	Module Name	Level	Credit	Compulsory/ Elective
Year 1				
LIBFEXDLBIBRVS_E	Operating Systems, Computer Networks, and Distributed Systems	4	15	C
LIBFEXDLBDSIPWP	Introduction to Programming with Python	4	15	C
LIBFEXDLBDSMFC	Mathematics: Analysis	4	15	C
LIBFEXDLBDSSPDS-01	Statistics - Probability and Descriptive Statistics	4	15	C
LIBFOARPDLBCSCW	Collaborative Work	4	15	C
LIBFEXDLBCSIDPITS	Fundamentals of Data Protection and Cyber Security	4	15	C
LIBFEXDLBCSEINF_E	Introduction to Network Security	4	15	C
LIBFEXDLBCSESPB_E	System Pentesting Basics	4	15	C
Year 2				
LIBFAWDLBIAWITT	Introduction to Academic Work for IT and Technology	5	15	C
LIBFAWDLBCSL	Algorithms, Data Structures, and Programming Languages	5	15	C
LIBFAWDLBCSTCSML	Theoretical Computer Science and Mathematical Logic	5	15	C
LIBFWACSDLBCSEDCSW_E	Secure Software Development	5	15	C
LIBFWAWADLBCSCT	Cryptography	6	15	C
LIBFWACSDLBCSEHSF_E	Host and Digital Forensics	5	15	C

Elective from Group A			15	E
Elective from Group A			15	E
Year 3				
LIBFWAWADLBCSEISS_E	Information Security Standards	6	15	C
LIBFWAREDLBDSSECDS	Seminar: Ethical Considerations in Data Science	6	15	C
Elective from Group B			15	E
Elective from Group B			15	E
Elective from Group C			15	E
Elective from Group C			15	E
LIBFBTDLBBT	Bachelor Thesis	6	30	C

Table 2: List of Electives

Module Code	Module Name	Level	Credit	Subject Area*
Electives A				
LIBFIRPFSINTER1	Internship I[1]	5	15	n/a
LIBFIRPFSINTER2	Internship II[1]	5	15	n/a
LIBFWACSDLBCSIITL	IT Law	5	15	n/a
LIBFWACSDLBCSIDM	Intercultural and Ethical Decision-Making	5	15	n/a
LIBFWAWADLBDSEAIS1	Artificial Intelligence	6	15	n/a

[1] Check eligibility before booking module.

LIBFOPRRPAECPT	Project: AI Excellence with Creative Prompting Techniques	5	15	n/a
LIBFWACSSEIT	Social Engineering and Insider Threats	5	15	n/a
LIBFOPRRPPSE	Project: Social Engineering	5	15	n/a
Electives B				
LIBFWAWAADA	Advanced Data Analysis	6	15	D&BI
LIBFWAPRPDA	Project: Data Analysis	6	15	D&BI
LIBFWAWADLBCSITSM-01	IT Service Management	6	15	IT
LIBFWAPRDLBCSPITSM	Project: IT Service Management	6	15	IT
LIBFWAWAIWNF1_E	Techniques and Methods for Agile Software Development	6	15	SE
LIBFWAPRIWNF2_E	Project: Agile Software Engineering	6	15	SE
LIBFPDLBSEPCP_E	Cloud Programming	6	15	CCDE
LIBFWAWADLBDSCC	Cloud Computing	6	15	CCDE
LIBFEXDLBCSRE	Requirements Engineering	4	15	ITSC
LIBFWAWATM	Threat Modeling	6	15	ITSC
LIBFWAWAPEH	Principles of Ethical Hacking	6	15	P&HF
LIBFWAPRPP	Project: Pentesting	6	15	P&HF
Electives C				
LIBFWAWADLBCSEBI1	Business Intelligence	6	15	D&BI
LIBFWAPRDLBCSEBI2	Project: Business Intelligence	6	15	D&BI
LIBFWAWADLBCSEITPAM1	IT Project Management	6	15	IT
LIBFWAWAIAMG_E	IT Architecture Management	6	15	IT

LIBFWAREISSE_E	Seminar: Software Engineering	6	15	SE
LIBFWAPRDLBSEPPSD_E	Project: Software Development	6	15	SE
LIBFWAWADE	Data Engineering	6	15	CCDE
LIBFPPDE	Project: Data Engineering	6	15	CCDE
LIBFWAWATOISC	Technical and Operational IT Security Concepts	6	15	ITSC
LIBFWAPRPCASS	Project: Configuration and Application of SIEM Systems	6	15	ITSC
LIBFWAWASDMA	Static and Dynamic Malware Analysis	4	15	P&HF
LIBFWARESSI	Seminar: Sandbox Interpretation	6	15	P&HF

*

D&BI = Data and Business Intelligence	IT = IT Project Management	SE = Software Engineering
CCDE = Cloud Computing and Data Engineering	ITSC = IT Security Consulting	P&HF = Pentesting and Host Forensics

Teaching, Learning & Assessment

Information about teaching, learning and assessment can be found in the Teaching, Learning and Assessment Strategy.

Our programmes are designed to:

- integrate theory with practice,
- develop your ability to critique and challenge models and theoretical frameworks,
- stimulate debate, discussion, and research,
- foster a variety of academic skills,
- be accessible and inclusive, and
- develop global citizens.

You are expected to undertake a considerable amount of independent study, including reading, industry-related research, and personal reflection.

Teaching Formats

The programme may be offered in various teaching formats, for example online or via blended learning.

You will have access to both asynchronous and synchronous teaching formats.

Via the Course Feed in the virtual learning environment, myCampus, you will be able to contact the module tutor in a flexible and accessible way.

This is also where Intensive Live Sessions are conducted synchronously with video-based elements. They serve to answer students' individual questions as well as to allow for group discussions.

Additionally, Learning Sprints[2] will offer a seven-week intense learning experience in which the lecturers guide students through the learning material in a very structured manner, with the goal of successfully preparing them to take the final assessment at the end. During this time, frequent synchronous online meetings are held, offering keynote speeches and interactive tasks.

Both the Intensive Live Sessions and Learning Sprints are recorded to further assist asynchronous learning.

In the blended format, teaching and learning combines online and in-person learning in a *flipped* classroom concept. Traditional classroom activities like lectures are conducted online via the learning platform, while in-class time is used for interactive work. On-campus elements like study groups and library study time complement this approach.

Learning Resources

You will have access to a wide range of resources, which may include the following:

- myCampus: This Moodle-based central information and digital learning platform is organized based on programmes and modules. On the respective module pages in myCampus, you can access all study materials (e.g., course books (i.e., text books), reading lists, practice exams, and video galleries) as well as the links

[2] Offered only when the minimum number of participants is reached.

to all related resources and databases (e.g., MS Teams, links to the library for further reading, contact details of lecturers, links to the booking tool for online exams, and the Turnitin submissions page). In the blended model you have access to the same learning platform, with slight adaptations made to accommodate, for example, differences in study sequence.

- Learnhub App: You can access your learning materials in a digital app and have all your notes and highlights synchronised. The app supports different learning formats, such as reading and annotating course books, using different colour codes, assessing knowledge with interactive self-tests, or watching the latest videos of the current module.

- Our comprehensive online library is aligned with the study content and kept up to date. Compulsory and further reading is mentioned in the course and module descriptions available for the students and aims to provide them with unlimited access.

Assessment & Feedback

Regulations relating to progression and assessment, including information on late submissions, are as set out in The Walbrook Institute London's General and Academic Regulations for Students.

Assessment strategies follow The Walbrook Institute London's Higher Education Accessible and Inclusive Learning Policy.

Assessment consists of both formative and summative approaches, and feedback and feedforward are provided as outlined in the Walbrook Institute London's Higher Education Assessing Learning & Feedback Policy. The different types of assessment used by the Walbrook Institute London are described in the Higher Education Types of Summative Assessment Guidance.

Module assessment methods are included in Module Handbooks which are made available in myCampus.

Credit and Award

Credit Framework

The BSc (Hons) Cyber Security programme is made up of 360 FHEQ credits. One credit approximates to 10 student effort hours; therefore, the total course requires an average of 3,600 hours of effort. Typically, one ECTS credit is the equivalent to two UK credits, although this may vary depending on the individual European state's requirements.

Award

On successful completion of the full programme, you will be awarded the

Bachelor's Honours Degree	360 credits, of which at least 90 credits must be at Level 6 and 30 credits must be obtained through the Bachelor Thesis

Regulations

The Walbrook Institute London's General and Academic Regulations for Students detail

- regulations governing the award of credit,
- how grades for awards are granted,
- time limits for completion of programmes of study
- capping of marks and regulations relating to the resitting of assessment components
- academic misconduct e.g., malpractice, and
- accreditation of prior learning (APL).

Exit Awards

In line with The Walbrook Institute London's General and Academic Regulations for Students, the following applies:

Bachelor's Degree (non-Honours)	minimum of 300 credits, of which at least 60 credits must be at Level 6
Diploma of Higher Education	minimum of 240 credits, of which at least 90 credits must be at Level 5
Certificate of Higher Education	minimum of 120 credits, of which at least 90 credits must be at Level 4

Note: The Walbrook Institute London does not award interim qualifications. For example, a student registered for the bachelor's degree will not automatically be awarded a Diploma or Certificate of Higher Education on completion of the required number of credits.

Professional Recognition

Credits gained via accreditation of prior learning (APL) into our awards may mean that students will not get certain exemptions from other institutions' higher education or professional awards that may recognise our programmes.

Criteria for Admission

All applications will be considered holistically and offers will be based on qualifications, subjects studied, any relevant work experience and personal statements demonstrating a desire to work in the relevant industry.

Students must be able to satisfy the general admissions criteria of The Walbrook Institute London. Entry requirements for all proposed undergraduate programmes are:

- 2 A Levels, and
- GCSE Maths 4 (C in old grading system) or above, and
- GCSE English 4 (C in old grading system) or above, and
- English language competence equivalent to IELTS 6.0 with no less than 5.5 in any element. An online English test is offered (SPEEX) if IELTS not available.

Overseas qualifications may be accepted and will be subject to evidence of equivalency normally verified through ECCTIS (UK ENIC).

If applicants do not satisfy these criteria, they can communicate with the Walbrook Institute London Admissions Team and discuss entry requirements.

Suitable work experience may be accepted as an alternative on an individual basis.

Applicants who do not meet the entry requirements may also be eligible to enrol in the Foundation Year for Information Technology and Computer Science, which guarantees progression to this programme.

Mature students who do not meet the entry criteria may be eligible to enrol under the Walbrook Institute London mature student process. Applicants should contact a member of the Admissions Team if they do not meet the criteria.

Benchmarks

External

- QAA UK Quality Code, including:
    - Subject Benchmark Statement for Computing (2022)
    - Level 6 descriptors in the Framework for Higher Education Qualifications in England, Wales and Northern Ireland
    - Higher Education Credit Framework for England

Internal

- The Walbrook Institute London Code of Practice
- The Walbrook Institute London General and Academic Regulations for Students

In addition, research with the relevant sector has been undertaken to ensure that the learning outcomes of the programme address identified skills and knowledge gaps.

Links

Teaching, Learning and Assessment Strategy

The Walbrook Institute London's General and Academic Regulations for Students

The Walbrook Institute London's Code of Practice for Quality Assurance, Chapter 3: Accreditation of Prior Learning (APL)

Accessible and Inclusive Learning Policy

Types of Summative Assessment

Higher Education Assessing Learning & Feedback Policy

Subject Benchmark Statement for Computing

Framework for Higher Education Qualifications in England, Wales and Northern Ireland

Higher Education Credit Framework for England

Curriculum Map of Modules Against Intended Learning Outcomes of the Programme

	Module Code	Module Name	Intended Learning Outcomes of the Programme									
			LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10
Year 1	LIBFEXDLBIBRVS_E	Operating Systems, Computer Networks, and Distributed Systems	X									
	LIBFEXDLBDSIPWP	Introduction to Programming with Python			X							
	LIBFEXDLBDSMFC	Mathematics: Analysis		X			X					
	LIBFEXDLBDSSPDS-01	Statistics - Probability and Descriptive Statistics		X			X					
	LIBFOARPDLBCSCW	Collaborative Work									X	
	LIBFEXDLBCSIDPITS	Fundamentals of Data Protection and Cyber Security	X				X	X		X		
	LIBFEXDLBCSEINF_E	Introduction to Network Security	X	X		X		X		X	X	
	LIBFEXDLBCSESPB_E	System Pentesting Basics	X	X		x		X		X	X	
Year 2	LIBFAWDLBIAWITT	Introduction to Academic Work for IT and Technology									X	X
	LIBFAWDLBCSL	Algorithms, Data Structures, and Programming Languages		X	X		X					

Year 3	LIBFAWDLBCSTCSML	Theoretical Computer Science and Mathematical Logic		X			X					
	LIBFWACSDLBCSEDCSW_E	DevSecOps and Common Software Weaknesses	X		X	X	X	X		X		
	LIBFWAWADLBCSCT	Cryptography	X	X			X	X	X	X		
	LIBFWACSDLBCSEHSF_E	Host and Software Forensics	X	X		X	X	X	X	X		
	Elective from Group A											
	Elective from Group A											
	LIBFWAWADLBCSEISS_E	Information Security Standards				X		X	X	X		
	LIBFWAREDLBDSSECDS	Seminar: Ethical Considerations in Data Science									X	X
	Elective from Group B											
	Elective from Group B											
	Elective from Group C											
	Elective from Group C											
	LIBFBTDLBBT	Bachelor Thesis	X	X		X		X	X	X	X	X

This table shows the distribution of the programme's intended learning outcomes (as specified in the programme specification) across the programme modules.

Mapping of Teaching Formats and Types of Media Used in the Programme Modules

	Module Code	Module Name	Type of Assessment[1]	Teaching Formats[2]			Types of Media[3]					
				CF	ILSE	LS[4]	CB	RL	OT	RB	V	PE
Year 1	LIBFEXDLBIBRVS_E	Operating Systems, Computer Networks, and Distributed Systems	EX	X	X	X	X	X	X		X	X
	LIBFEXDLBDSIPWP	Introduction to Programming with Python	EX	X	X	X	X	X	X		X	X
	LIBFEXDLBDSMFC	Mathematics: Analysis	EX	X	X	X	X	X	X		X	X
	LIBFEXDLBDSSPDS-01	Statistics - Probability and Descriptive Statistics	EX	X	X	X	X	X	X		X	X
	LIBFOARPDLBCSCW	Collaborative Work	OARP	X	X	X	X	X	X		X	
	LIBFEXDLBCSIDPITS	Fundamentals of Data Protection and Cyber Security	EX	X	X	X	X	X	X		X	X
	LIBFEXDLBCSEINF_E	Introduction to Network Security	EX	X	X	X	X	X	X		X	X
	LIBFEXDLBCSESPB_E	System Pentesting Basics	EX	X	X	X	X	X	X		X	X
Year 2	LIBFAWDLBIAWITT	Introduction to Academic Work for IT and Technology	AW	X	X	X	X	X	X		X	
	LIBFAWDLBCSL	Algorithms, Data Structures, and Programming Languages	AW	X	X	X	X	X	X		X	

Year 3	LIBFAWDLBCSTCSML	Theoretical Computer Science and Mathematical Logic	AW	X	X	X	X	X	X		X	
	LIBFWACSDLBCSEDCSW_E	DevSecOps and Common Software Weaknesses	WACS	X	X	X	X	X	X		X	
	LIBFWAWADLBCSCT	Cryptography	WAWA	X	X	X	X	X	X		X	
	LIBFWACSDLBCSEHSF_E	Host and Software Forensics	WACS	X	X	X	X	X	X		X	
	Elective from Group A											
	Elective from Group A											
	LIBFWAWADLBCSEISS_E	Information Security Standards	WAWA	X	X	X	X	X	X		X	
	LIBFWAREDLBDSSECDS	Seminar: Ethical Considerations in Data Science	WARE	X	X	X						
	Elective from Group B											
	Elective from Group B											
	Elective from Group C											
	Elective from Group C											
	LIBFBTDLBBT	Bachelor Thesis	BT									

This table shows the distribution of teaching formats and types of media used in the programme modules.

[1]EX = Exam, WAWA = Written assignment, WACS = Case study, WARE = Research essay, WAPR = Project report, P = Portfolio, AW = Advanced Workbook, OARP = Oral Assignment + Reflection Paper, OPRRP = Oral Project Report + Reflection Paper, BT/MT = Bachelor / Master Thesis

[2]CF = Course Feed, ILSE = Intensive Live Sessions, LS = Learning Sprints

[3]CB = Course Book, RL = Reading List, OT = Online Tests, RB = Review Book, V = Videos, PE = Practice Exams

[4]Offered only when the minimum number of participants is reached.