

**Faculty of Engineering and Environment
Department of Computer Science and
Digital Technologies**

**BSc (Hons) Computer and Digital
Forensics**

Programme Handbook 2015 - 2016

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Welcome from the Programme Leader – Graeme Horsman

Welcome to the BSc (Hons) Computer and Digital Forensics programme. The programme aims to provide an education in the knowledge, skills and techniques necessary for a career in computer forensic investigations. Detail on the specifics of what you will study can be found in Section 4.3.

2 Department Introduction

Computer Science and Digital Technologies at Northumbria University encompasses all of our work in games, robotics, mobile applications, animation and digital visual effects, computer forensics and ethical hacking, network technology and website design. Our students, staff and researchers develop and refine cutting edge technologies that impact on the way we all live our lives. They work cross- discipline, exploring the way that technology can impact on health, travel, security intelligence, artificial intelligence and many other sectors.

3 About this handbook

This handbook is designed to provide a guide to your programme of study at Northumbria. It should be read alongside the University and Faculty Student Handbooks which contain more general information about being a student at Northumbria within the Faculty of Engineering and Environment.

It does not provide all of the information that you will need although it attempts to tell you where to find most of that information. The latest version of much of the further information that you need is to be found in a comprehensive and definitive form on the Northumbria website. A key page is titled '*Information for Students*' available by clicking on '*Current Student*' on the University home page (<http://northumbria.ac.uk>).

4 Who's Who and Communication?

4.1 Who to go to for help

You will meet a broad range of academic, administrative and technical staff throughout your studies. The majority of staff will be drawn from the various subject areas within the Faculty. However, we also draw upon subject specialisms outside the Faculty and external consultants, industrialists and advisors.

Staff from the Faculty and from the wider university (such as the Library & Learning Services, IT Services and Student Services) are here to help you get the most out of your Programme. In this section, we introduce you to some of the key people who will support you at Faculty and subject area level.

Ellison Building Office

Office location: Ellison Building room B201

Email: ee.studentsupport@northumbria.ac.uk

Telephone 0191 227 3638

Office hours: 8.30 am – 5 pm Monday to Thursday, 8.30 – 4.30 pm on a Friday

Pandon Office

Office Location: Pandon Building room 007

(ground floor) Email:

ee.studentsupport@northumbria.ac.uk

Telephone: 0191 243 7379

Office hours: 8.30 am – 5 pm Monday to Thursday, 8.30 – 4.30 pm on a Friday

This is a dedicated point of help for students. It should be your first point of contact for all queries.

Programme Leader

Name: Graeme Horsman

Office Location: Pandon Building Room 241

Email: g.horsman@northumbria.ac.uk

Office Hours: 0900 – 1700

Your Programme Leader is the academic leader for your programme and is responsible for managing the programme on a day to day basis, working with other Faculty and University staff – academic, administrative and technical – as needed. Your Programme Leader is committed to helping you get the most out of the Programme and, where relevant, will liaise with your Year Tutors, Module Tutors and other relevant staff to make sure that they are aware of your needs and of how you are doing.

Programme Coordinator

Your Programme Coordinator (Andrew Cox) holds all the key information regarding your programme. This is the person who manages such processes as enrolment, option choice, day to day correspondence, confirmation of attendance letters, marks entry, etc. They can be contacted via the Pandon Office.

a.cox@northumbria.ac.uk

First Year Tutor

Name: Graeme Horsman

Office Location: Pandon Building Room 2

Email: g.horsman@northumbria.ac.uk

Telephone: 0191 243

Second Year Tutor

Name: Emil Petkov

Office Location: Pandon Building Room 2

Email: emil.petkov@northumbria.ac.uk

Telephone: 0191 243

Final Year Tutor

Your Programme Leader Graeme Horsman (contact details above)

Your Year Tutors are members of the academic staff and are responsible for students on this particular year of the course. They work closely with the Programme Leader and Programme Coordinator to support you on your programme.

Module Tutor

For each module of study, you will have a designated Module Tutor. The Module Tutor is responsible for the organization of the module and supporting your learning and assessment on that module.

4.2 Communication

Contacting Your Programme Leader

The best way to contact me is via email – g.horsman@northumbria.ac.uk

Academic staff may teach on many modules and programmes. In addition they may have other roles and responsibilities which take them from their office. Thus it is advisable to make an appointment if you wish to see them. You can do this via email or you can just turn up at their office. Occasionally you may be able to have an immediate appointment, but don't be disappointed if you are asked to

return at a mutually convenient time. Please contact staff to cancel if you are unable to make the arranged appointment.

Email

Email is used extensively throughout the University and is a very effective method of communication between students and staff. You will be automatically allocated an email address by the University once you have enrolled. Do remember that the Northumbria email address is the one that should be used when contacting University and Faculty staff. It is also the one that is used by staff to make contact with you, so do make sure that you check it regularly, particularly if you also use a personal email account. Please be aware that staff may not reply to your email immediately due to their other duties and activities.

eLearning Portal

The eLearning Portal (eLP) is a very important resource for students. You will find specific information related to the modules you are taking, such as copies of lecture and seminar handouts, assignment briefings, instructions, and announcements. Your Programme Leader uses the eLP to pass on information concerning programme matters.. It is important that you check the eLP regularly – at least daily – for new announcements and new material.

TV Screens

The Faculty has a number of TV screens in Pandon and Ellison Building. These are also used to display announcements, events and opportunities such as visits from potential placement providers.

PLEASE NOTE: *IT IS REALLY IMPORTANT THAT IF YOU HAVE AN ISSUE YOU CONTACT US AS SOON AS POSSIBLE – WE ARE HERE TO HELP*

5 Programme Information

Here you will find specific information on your programme of study. There is a national requirement that all university programmes of study have a publicly available Programme Specification and this section is based on that programme specification. The full and definitive version of the programme specification can be found at <http://www.northumbria.ac.uk/programmespecs/>

5.1 Programme Aims

The primary aim of this programme is to provide a broad, general education in the theory and practice of computing with special emphasis in the area of digital forensics. The programme aims to produce highly skilled and professional graduates with abilities in resolving digital forensic problems and cases, designing systems for the resolution and management of digital forensic activities, preserving the evidential integrity in digital forensic analysis, developing and managing computing solutions, being knowledgeable of current and emergent technologies, understanding legal, social, ethical and professional responsibilities of practitioners and having a broad awareness of the computing industry.

Digital forensics is the scientific examination and analysis of data held on or retrieved from computer storage media for the purposes of presentation in a court of law, together with the study of the legal aspects of computer use and misuse. The award of and BSc (Hons) Computer and Digital Forensics address the rapidly emerging need of Police forces, security agencies, commercial organisations specialising in forensics and as part of larger organisations (where there is the need to carry out internal investigations) for skilled professionals in the developing area of digital forensics. The programmes address the fundamental principles, tools and techniques across the

computing discipline in general, allowing graduates to be employed in a wide variety of computing employment opportunities.

The content of this programme and the skills and techniques developed in the programme are potentially damaging if used maliciously and the capabilities developed in this programme have potential for harm. Academics will emphasise the professional expectations of students working in this domain as well as stress the students' ethical and moral responsibilities to themselves and others, including the Faculty and the University.

Typically graduates from the programme will have the opportunity to work in organisations developing solutions to digital forensics problems, particularly in relation to the technical development and use of digital forensics tools and the resolution of digital forensics cases. However, it should be emphasised that there is not an infinite pool of digital forensics opportunities. Graduates will also be suited to employment in general computing employment and in related specialist areas such as computer networks, computer security, system security, internet computing and database development and management.

5.2 Programme Learning Outcomes

A. Knowledge and Understanding

On completing the programme we want students to know and understand:

- The business need for computer forensic applications, their nature and evolution.
- The fundamental principles of core software technologies, including, operating systems, protocols, software applications and technical issues in computing.
- The essential facts, concepts, principles, theories and techniques underpinning digital forensics and in particular the maintenance of evidential integrity in all digital forensics activities.
- Techniques and tools for the specification and implementation of hardware and software solutions for conducting digital forensics investigations.
- Hardware platforms, network architectures, technologies and standards, used in and to support digital forensics investigations.
- Techniques involved in digital forensics investigations, including the limitations and constraints associated with those techniques.
- The application and validity of analytical methodology for computer forensics investigations.
- The professional, social, ethical and legal issues involved in the development and operation of computing systems, including societal aspects of computer crime, and legal constraints on digital forensic evidence.

B. Intellectual Skills

The most important intellectual skills developed on the programme are to:

- Select, plan and manage individual and team-based projects.
- Discuss and critically evaluate available investigative tools, methods, and technologies and associated user and professional issues.
- Identify a problem and select and apply effective methods and tools for its solution.
- Select the most appropriate methods and tools for the solution to a given digital forensics problem.
- Analyse a simple computing problem domain, and build an effective software solution to given problems in that domain.
- Integrate and evaluate information and data from a variety of sources.
- Demonstrate and exercise independence of mind and thought.

- Reflect on the professional, social, ethical and legal issues surrounding digital forensics investigations.
- Solve digital forensics problems through the application of digital forensics analysis techniques whilst maintaining evidential integrity to a standard expected by a court of law.

C. Practical Skills

The most useful practical skills, techniques and capabilities developed are:

- Analyse, design and implement solutions for increasingly complex and varied computing and digital forensics problem domains.
- Use a range of tools, techniques, knowledge and technologies in the development of computing applications.
- Use appropriate techniques and tools to support effective resolution of digital forensics problems and cases.
- Undertake detailed digital forensic analysis by applying appropriate computer and network forensics tools and the fundamental principles of computer forensics whilst preserving evidential integrity throughout that analysis to a standard expected by a court of law.

Transferable/Key Skills

The student will be able to:

- Communicate information, ideas, problems and their solution, in both written and oral form.
- Manage their time and resources efficiently.
- Work effectively both individually and as a member of a team.
- Exercise initiative and personal responsibility.
- Learn independently using a diverse range of resources.
- Evaluate and criticise their own learning experience.
- Reflect on their professional development through the PDP process

5.3 Programme Structure

Level 4, Year 1

Semester 1	Programming 1 CG0047	Introduction to Computer Crime Investigation CM0431	Relational Databases CM0429	Web Technology EN0407	PC Technology 1 EN0157
Semester 2	Programming 2 CG0048				

Level 5, Year 2

Semester 1	Dynamic Internet Technologies CM0513	Operating Systems in Practice CM0572	Principles of Evidence and Procedure LA0694	Digital Forensics: Principles and Practices CM0583
Semester 2		Reflective Practice for Computer Forensic Professionals EN0571		

Year 3

Semester 1	CM0567 CEIS Professional Placement
Semester 2	

Level 6, Year 4

Semester 1	Advanced Digital Forensics CM0675	Project CM0645	Mobile Computing, Communications and Security EN0639	Legal and Evidentiary Aspects of Computer Forensics CM0664
Semester 2	Corporate Digital Forensic Investigations EN0612			

5.4 Module Information

A full and detailed breakdown of the modules on the programme can be found at

<https://www.northumbria.ac.uk/study-at-northumbria/courses/computer-and-digital-forensics-uuscdf1/#modules>

5.5 Learning Teaching and Assessment Strategy

The programme aims to provide students with a wide range of learning opportunities in an exciting, challenging, stimulating and dynamic quality learning environment. The programme learning outcomes are aligned with module learning outcomes and the learning methods applied to address the module learning outcomes are specified in module descriptors. Students have a variety of learning opportunities including lectures, seminars, tutorials, practicals, research, case studies, online using Blackboard, guest / expert input and task based learning in guided and independent study modes. The variety includes methods for individual as well as group learning. Students will be encouraged to develop independent learning skills and techniques in Level 4 and these will be used increasingly in levels 5 and 6. Students will be supported in their skills development in each module and through reference to the University's "Skills+" programme. At levels 5 and 6 students are increasingly expected to incorporate critical analysis and critical evaluation into their learning. Students will be supported in developing these skills throughout the programme. The development of transferable skills permeates the whole of the programme, particularly with regard to communication and presentation of the results of investigations in a digital forensics environment.

The subject of digital forensics is continuously developing, evolving and changing and as a result students will be expected to keep up to date with developments through independent research. The input from guest speakers (practitioners and industry experts will contribute to the currency of the subject material)

The assessment methods used in the programme aim to reflect the wide range of teaching and learning practices, and diversity of subject matter across the discipline of computing and the subject domain of digital forensics. Assessments are designed to align with the module learning outcomes and assess the learning outcomes of each module in the most appropriate way whilst ensuring a full-range of assessment methods across the programme.

Whilst learning and the measurement of learning will be linked closely to assessment, it is hoped that the learning environment and learning opportunities presented to students will encourage students to be motivated to learn for educational reasons, and not simply to pass summative assessments. The aim is to avoid surface learning and focus on the need for learning opportunities that elicit a deeper more reflective learning response from students.

Formative assessment and feedback is incorporated into modules wherever appropriate and students are encouraged to participate in formative activities through linking those activities to PDPs and using the formative activities to develop the skills, techniques and expectations of summative assessment. Summative assessment methods include exams, technical reports, forensics reports, case study analyses, presentations, portfolio and project work.

The material presented in this programme is potentially damaging if used maliciously and the capabilities developed in this programme have potential for harm. Academics will emphasise the professional expectations of students and of persons working in this domain as well as stress the students' ethical and moral responsibilities to themselves and others, including the Faculty and the University.

5.6 Feedback

Formative assessment and feedback is incorporated into modules wherever appropriate and students are encouraged to participate in formative activities through linking those activities to PDPs and using the formative activities to develop the skills, techniques and expectations of summative assessment. Summative assessment (this is not marked but rather is designed to help you improve your work) methods include assignments, exams, technical reports, case study analyses, presentations, portfolio and project work.

6 External Examiner Information

The External Examiner for these programmes is Sukhvinder Hara from Middlesex University

7 Placement Opportunities

You will have the opportunity to undertake a year-long paid placement in their third year of your programme. A dedicated placement team based in the Pandon Building Office is there to offer support in all stages of the placements process. Both the placement office and the University Careers Service can help with CV preparation and checking as well as interview techniques.

Recent students have found placements in a variety of companies and industries such as: Northumbria Police, Zentek Forensics Ltd, Pricewaterhouse Coopers, First Advantage Litigation Consulting, Accenture, Hewlett Packard, British Engines Limited to name a few.

8 Programme and Assessment Schedule

8.1 Course Dates 2015/2016

Semester One		
Enrolment	Thursday 10 September to Friday 2 October 2015	3 weeks and 2 days
Welcome/Induction Week	Monday 14 September to Friday 18 September 2015	1 week
Teaching Weeks	Monday 21 September to Friday 11 December 2015	12 weeks
Winter Break (student self-directed time)	Monday 14 December 2015 to Friday 1 January 2016	3 weeks
Assessment Weeks	Monday 4 January to Friday 15 January 2016	2 weeks
Semester Two		
Teaching Weeks	Monday 18 January to Friday 18 March 2016	9 weeks
Spring Break (student self-directed time)	Monday 21 March to Friday 8 April 2016	3 weeks
Teaching Weeks	Monday 11 April to Friday 29 April 2016	3 weeks
Assessment	Tuesday 3 May to Friday 20 May 2016	3 weeks
Final year results published	Friday 24 June 2016	1 day
Summer Award Congregations (<i>provisional</i>)	Thursday 7 July to Wednesday 13 July 2016	1 week
Reassessment Period	Monday 22 August to Friday 26 August 2016	1 week

Students must note the above dates and ensure their availability to fulfil all academic requirements for their programme of study.

Source: Course Dates 2015/2016 -

<https://www.northumbria.ac.uk/sd/central/ar/spa/dates/coursedates2015/?view=Standard>

8.2 Assessment Schedule

The assessment schedule for each module will be included in the Module Guide and this is available electronically via Blackboard. This should include when assessments will be given out and submission dates.

To help your study during the academic year it is **essential** that you make a note of **all** assessment submissions dates to help you plan your workload.

9 Absence Monitoring

Registers of attendance are taken in scheduled teaching sessions (e.g. in workshops). These are used to monitor attendance and if students are found not to be attending they will be contacted to determine the reason. If there is a problem causing poor attendance it may be that the University can help. Experience shows that good attendance helps students to pass and do well.

Please note that continued non-attendance can result in the student being asked to leave their programme of study.

10 Resources and Laboratories

Pandon F2/F3 32 seat dedicated specialist digital forensics & security laboratory

- Microsoft Windows 7 and Office 2010
- Ubuntu
- VMware
- EnCase
- Microsystemation XRY Logical and XRY Physical
- Cellebrite
- NetAnalysis and HstEx
- BackTrack
- DEFT

11 Other Course Specific Information

Course Information:

BSc (Hons) Computer and Digital Forensics -

<http://www.northumbria.ac.uk/?view=CourseDetail&code=UUSDCF1>

12 Professional Bodies (PSRB)

The programme has full accreditation from the British Computer Society (BCS), more information can found at the following link -

http://www.northumbria.ac.uk/sd/academic/ee/accreditation/bcs_accreditation/?view=Standard. It

is anticipated that the course in the near future will look to be additionally accredited by the Forensics Science Society.

Northumbria Students' Union (NSU) is here to make sure you have the best experience possible. NSU is one of the largest and most exciting Unions in the country and that's all because of YOU. We represent you, the student, on all levels, on the issues students are concerned about; receiving a great academic experience, being very employable when you graduate, being safe on campus and in the city and having a fantastic time while a student.

NSU is run by students for students. You can have your say in what NSU does and how it is run, by contacting your [Sabbatical Officers](#) or by coming along to [Student Council](#)

MEMBERSHIP: As a student of Northumbria University you are automatically a member of the Students' Union. We also sell NUS Extra Card from the Students' Union at both [Coach Lane](#) and [City Campus](#) giving you discounts in shops and online, but you don't need one to use any of our services.

DIVERSE: Your Students' Union is a place which brings together students from all walks of life, all parts of the country and the world and many different cultures. NSU provides lots of opportunities for you to [Get Involved](#), make lasting friendships, increase employability and have FUN!

INDEPENDENT: NSU is independent of the University, with its own staff, services and decision-making structure. Run by students for students, providing the best services and opportunities for students we push for change from the University to deliver for students. Find out more at our [You Said, SU Did](#) page. If you need advice about academic appeals or other issues, we can help. Check out the [Advice Page](#).

VALUE: Your NSU offers the best value for money, and everything you spend goes straight back into the Students' Union to fund all the activities that we run for you.

If you would like more information check out the website www.mynsu.co.uk or come and see us at our [offices](#) in City, Coach Lane and London.

The libraries at City Campus and Coach Lane provide access to a wide range of print and electronic resources including over half a million print books, over 700,000 eBooks and more than 50,000 electronic journals. More details can be found on the University Library website: <http://library.northumbria.ac.uk/home>

City Campus Library (number 14 on City Campus map) is housed near the Student Union building (number 30 on City Campus map).

Coach Lane Library is situated on the East Side of the Campus, in F Block (number 16 on Coach Lane Campus map).

City Campus library is open 24/7 during term time and from 9am to midnight during vacation times. Coach Lane library is open 7am until midnight (Monday to Friday), 9am until midnight (Saturday and Sunday). Opening hours are prominently displayed in the foyers of the library buildings, any changes are advertised on the Library website and on social media. Opening hours vary during bank holidays and are subject to change, so please check before you travel.

You will need to keep your smartcard with you to gain access to and leave the libraries. Your Smartcard is a universal card which not only gives access to the Libraries and other University buildings, but it also allows you to print, copy, scan, borrow books and make cashless payments.

The Library Catalogue can be accessed on and off-campus through the University Library website and the dedicated catalogue computers on each floor of both Libraries. The catalogue can be used to search for books and eBooks located in the University Library. It is quick and easy to use and will give you the information you need to locate the material on the shelves or read online. eBooks can be read on and off-campus, anytime, anywhere. NORA can be used to search for, and retrieve, up-to-date scholarly materials including articles, reports and statistics that are relevant to your studies. You can browse through all the online resources relating to your subject in one place including databases, journals and websites.

Students are entitled to borrow up to 15 items at any one time. Items can be issued using the self-issue machines on the ground floor of City and Coach Lane Libraries. You can renew your library books online through the MyLibrary section of MyNorthumbria or via the Library Catalogue.

Northumbria students can use other libraries such as the Robinson Library at Newcastle University and Newcastle City Library using the SCONUL access scheme. For more information see the Library SCONUL information page: <http://library.northumbria.ac.uk/sconul-holiday>

The Northumbria Skills Programme is a comprehensive skills programme designed to develop the key skills you need to succeed at university and beyond provided by the Library. It runs throughout the year and provides classroom style skills sessions on many topics including academic writing skills, giving accomplished presentations, and referencing your work correctly, as well as regular drop in surgeries. Some sessions are bookable; simply consult the timetable on the Northumbria Skills Programme website: <http://library.northumbria.ac.uk/skillsdev-nsp>

Skills Plus is the Library's collection of online learning materials, with a focus on digital literacy and study skills that can be accessed on and off-campus. Using these resources is an excellent way to develop your skills through a range of online tutorials with quizzes, video demonstrations and printable help guides. <http://nuweb2.northumbria.ac.uk/library/skillsplus/topics.html?l3-0>

If you need help or advice, on or off campus, you can contact Ask4Help. The Ask4Help service provides you with help and support to access a range of University services including Library, Disability Support, Student Finance and Careers. The quickest way to find answers to some of the most popular questions asked by students is to look at Ask4help online. You can also contact us by phone and speak to a member of our dedicated enquiry team or email us your questions.

www.northumbria.ac.uk/ask4help
ask4help@northumbria.ac.uk
0191 227 4646