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INTRODUCTION

Thank you for your interest in studying Computing degrees at Goldsmiths. Please read this booklet in conjunction with our *Undergraduate Prospectus* to find out more about our facilities and to help you get a picture of the whole College.

This is Goldsmiths

Goldsmiths began life in 1891, as the Technical and Recreative Institute founded by the Worshipful Company of Goldsmiths. We are now a College of the University of London, and the UK's leading creative university.

We have an international reputation for excellence in teaching and research in creative, cultural and social processes; our unique academic profile comes from the interaction and co-operation of fourteen academic departments including Professional and Community Education (PACE), and a number of smaller centres and units.

Research at Goldsmiths

Postgraduate study and research is vital to academic life at Goldsmiths: we have a growing national and international reputation for research excellence, and are part of the prestigious '1994 Group'. An excellent performance in the 2001 Research Assessment Exercise (RAE) saw us building on our outstanding successes in previous assessments.

Life at Goldsmiths

Our campus is at New Cross, South East London, a lively urban setting with excellent public transport connections to the Capital's many attractions. Our students come from diverse social and cultural backgrounds: many from South East London, others from all over the UK, and a growing number from overseas. It's a friendly, welcoming place, and there's always something going on: the Students' Union offers a thriving package of entertainment, and there are frequent theatre performances, concerts, and exhibitions.

Quality matters

We are committed to ensuring that you are offered a high quality teaching and learning experience, so you'll have the opportunity to take an active part in monitoring quality and standards.

Facilities

Goldsmiths can provide you with the sort of facilities you'll need, but isn't so big that everything seems impersonal and unfriendly, as it can at other universities. Our award-winning Rutherford Information Services Building, for example, brings together traditional and electronic resources in a 'state-of-the-art' setting.

Accommodation

We can normally guarantee to accommodate all new full-time students in a hall of residence, subject to certain conditions. Overseas [non EU] students are guaranteed a place in College accommodation for the whole of their programme of study, though not necessarily in the same hall each year.

Student support

The Student Support Office (tel 020 7919 7757, e-mail student-support@gold.ac.uk) provides a central point of contact for information and advice on issues of personal concern for students.

Find out more

This is just a brief introduction to Goldsmiths and its facilities. Find out more by calling one of the contact numbers given at the end of this booklet to get a copy of the *Postgraduate Prospectus*, or visit our website at www.goldsmiths.ac.uk

INTRODUCING THE DEPARTMENT

The Computing Department is a flourishing centre of teaching and research in the disciplines of computer science, and information systems.

The staff who teach you are all actively engaged in quality research and you will benefit from their specialist knowledge of their subjects.

Special features include:

- Friendly, supportive Department with a mix of students of different ages and backgrounds.
- Excellent and innovative teaching and learning resources including a wide range of printed and electronic materials.
- Regular small group tutorials to support students in the first year of their studies.
- Printed study guides to support most modules.
- Goldsmiths has a growing reputation in computing research, including research in Web-based Systems, Internet Algorithms, Computer and Internet Security, Artificial Intelligence, and Computer-Aided Design.

Quality and Standards

We were given an unequivocal vote of confidence for the quality and range of our undergraduate programmes by reviewers from the Quality Assurance Agency in May 2004.

Departmental and College facilities

The Department has excellent computing facilities for teaching and laboratory work. There are three department laboratories containing 90 PCs equipped with a substantial amount of local software and with connections to the College and Department servers. There is also a laboratory for final year students working on specialised projects on networking and communications.

In addition, the Rutherford Information Services Building with its access rooms provide more than 200 PCs and Macintosh systems for general use in the College. All computers in the College are connected to central servers, which provide data storage, access to shared resources, such as the library catalogue, course and training materials and access to the Internet. All students have access to e-mail facilities and can publish their own Web pages.

OUR DEGREES

We offer the following BSc honours degrees:

Computer Science
UCAS code G400

Computing and Information Systems
UCAS code G420

Internet Computing
UCAS code G530

Creative Computing
UCAS code to be confirmed

Information Technology
UCAS code to be confirmed

We also offer a BA honours degree:

Computing and Design for the World Wide Web
UCAS code GGK5

You can choose to study all these degrees over three years full-time or four years full-time with an optional industrial placement year, or from four to six years part-time.

Application and admission

We welcome applications from students studying two or more subjects at A2-level (or AS-level equivalents), BTEC, access courses and GNVQ's. Applicants for *Computing and Design for the World-Wide Web* will, additionally, be required to present a portfolio of design work. The majority of students enter the degree course the year following GCE A-levels or equivalent, but we welcome applications from mature students, aged over 21. Mature students without A-levels may be admitted if they have successfully completed a recognised access course, or, exceptionally, have relevant industrial experience which may be substituted for formal qualifications. Please see the *Undergraduate Prospectus* for further details.

Our normal entry requirements for our undergraduate programmes are 1 full 'A' level at grade B and either 2 full 'A' levels at grade C or an equivalent combination of AS/A levels. For the BSc in Creative Computing our normal entry requirements will be 2 full 'A' levels at grade B and either 1 full 'A' level at grade C or an equivalent combination of AS/A levels.

Entry into the second year for suitably qualified students is also a possibility.

If you wish to study full-time, you apply through Universities and Colleges Admissions Service (UCAS), Rosehill, New Barn Lane, Cheltenham, Gloucestershire GL52 3LZ. If you would like an application form, please call 01242 223707, or if you have a general enquiry, call 01242 222444. You can visit their website at wwwucas.ac.uk

Application forms for part-time study are available from, and should be returned to, the Registry Admissions Office at Goldsmiths; contact details are on page 14.

Degree entry requirements

Please see page 4 and page 7 for degree entry requirements.

Teaching and assessment

Courses are delivered by a combination of lectures, tutorials, workshops and laboratory sessions. Lectures are given to all students taking the module concerned. For tutorials, laboratory and workshop sessions, you will be learning in a smaller group benefiting from more individual attention. In addition, lecturers are available at set hours each week to help and advise you on an individual basis. You will have about twelve hours of lectures and three hours of laboratory work or tutorials each week in the first two years of the programme. In the final year, you could expect to spend at most twelve hours in formal classes and laboratory sessions each week, or at most nine hours if you take a supervised project.

Your learning is also supported by a set of study guides covering most modules. A study guide gives a full account of a module with illustrative examples, exercises and references for further reading. You also make use of specially designed web resources.

Assessment for most modules is based partly on assignments, tests and laboratory exercises, or combinations of these, and partly on an examination at the end of the academic year. The final year project is assessed by coursework alone. All three years of your degree count towards your final honours classification, with the second and final year courses having more weight than first year courses.

If you opt for an industrial placement year, your placement tutor will assess your work. The result is either a pass or fail. Students who pass the placement year earn the endorsement “with work experience” on their degree certificate.

Industrial Placement Year

The demand for people with knowledge and skills in areas of computer science and information systems continues to be extremely high. However, the number of graduates in these areas is also rapidly increasing, and a good degree may no longer be sufficient on its own to secure the job you want immediately after you graduate. Employers increasingly demand that new recruits are able to add immediate value to their organisation. If you can demonstrate that you have already achieved a certain level of professional competence and maturity, you will be in a much better position to get the job you desire. How can you achieve and demonstrate this? One answer is through a good industrial placement experience.

Our degree courses include an *optional* Industrial Placement year, between the second and final year of study. Although we encourage you to take the opportunity of a placement year, you can also complete your degree in a straight three years. You can delay making the choice until the middle of your second year.

The Department and the College's Career's Service, in collaboration with the University of London's Career's Office, provide you with substantial support in helping you to find a placement and to submit your application to the prospective employer. You are also supported during the placement year, by a placement tutor who provides you with guidance and support and who liaises between you and your employer.

If you opt to undertake an industrial placement, you will not only benefit from gaining valuable work experience, you will also improve:

- your study skills: understanding of the relevance of your degree to industrial and commercial applications, greater self-confidence, better motivation and time-management skills;
- your understanding of the implications of career choices;

- your professional and personal skills: conducting market research, communication skills, working with others, leadership, working under pressure, self-discipline, initiative, problem solving, efficiency;
- your technical skills: web development, requirements analysis, system design, programming in Unix, Java and SQL.

An industrial placement also offers more benefits than simply from a career perspective; it also provides you with the opportunity to improve your financial status, to widen your cultural experience and, not least, to have some fun. Our experience so far with 'placement students' has been very positive. The students themselves share the same opinion.

External programme

If you are successfully studying BSc in Computing and Information Systems on the University of London External Programme, you may transfer into the second year or the third year of that degree at Goldsmiths, or you may transfer into the second year of Computer Science or Internet Computing at Goldsmiths.

Open Days and interview policy

Applicants through UCAS are invited to an Open Day in the Department. Staff members will present the main features of the Department and the degree programmes, will be available to talk to you about the courses and teaching methods, and will answer your questions. Current students will show you around the College and talk to you about their views of the course and university life. Open Days enable you to see the College in normal working surroundings, and candidates are urged to try to attend.

If you are a mature applicant, or if you have alternative qualifications, we will probably call you for interview as part of the UCAS day.

A College-wide Open Day for all degree programmes across the University is usually held in June of each year. For further information, and to book online, please visit www.goldsmiths.ac.uk or call 020 7919 7040.

Individual visits

Goldsmiths is open to the public and you may visit individually (or with one or two friends - groups any larger than this should contact the Recruitment Officer for an arranged visit), during normal office hours. It is best to visit during term-time so that you get an idea what the College is like for students. Term dates are given in the prospectus and are available on our website. You will not gain access to restricted areas of the College on your visit, but you will gain an impression of our student and staff population. In feedback from previous visits and open days, many visitors to Goldsmiths comment on the special atmosphere they find here.

Self-guided tours are available from the Admissions Office, Room 123, Main Building.

WHY CHOOSE COMPUTING AT GOLDSMITHS?

Studying Computing at Goldsmiths will give you the fundamental skills needed to become a Computing professional. You will learn how to turn a proposal into a working system that can develop and grow to meet new and changing needs. These skills will include knowledge of:

- various aspects of programming and programming paradigms;
- computer systems development and project management;
- applications of computing in the modern business environment;
- computing systems that are distributed over a network (both as an intra-net and as an internet);
- design of database management systems, computer networks and applications development.

In addition, from the various optional courses, you can learn about the more specialist areas of computer science and information systems, including e-commerce, computer security, data compression, hypermedia, the principles of system and software management and artificial intelligence.

Our degrees aim to give you a wide appreciation of the subject - rather than just an understanding of existing commercial approaches - so that your knowledge can adapt and evolve to match the skills that will be required in the 21st century.

Degree entry requirements

Our standard offer is BCC for 3 'A' levels, or an equivalent combination of AS & A levels. If you are taking 2 'A' levels, we will normally adjust our offer to BB (or equivalent). We consider all 'A' level subjects, if you do not have a Science or Mathematics based 'A' level, you should normally have at least Grade B at GCSE Mathematics.

THE COURSES

Structure

In the first and second years of your programme of study, you will take core courses which are common to all of our undergraduate degrees in addition to these, you will also take courses which are specific to your chosen degree and will give you specialist in depth knowledge. This allows you the flexibility to change your degree path after you have been introduced to the main strands of the programmes. In your final year you will take a computing project, this will give you an opportunity to undertake a detailed study of a 'real world problem' taken from industry or commerce and to put forward a solution and ways of implementing it.

You can study for any of these degrees full-time over three years, or over four years with the third year spent on a supervised industrial placement year in the computing or information technology field.

You can also study for any of the five programmes on a part-time basis over four to six years. You can change between part-time and full-time status, subject to approval

You can also study the degree in Computing and Information Systems as an external student of the University of London. If you are registered as an external student, you can also apply to transfer to study at Goldsmiths. Further information is on page 6.

The academic year is divided into two eleven-week teaching terms, followed by a six-week summer term, which is spent in revision and assessment. The course is modular. Assuming that you study full-time over three years (or over four years including an industrial placement year), you take four compulsory, two-term courses in each of the first two years. In the final year, you choose six one-term courses from a list of options (four if you are on the BA programme) and work throughout both terms on a project supervised by a member, or members, of staff. The topic of the project will be agreed between you and your project supervisor(s).

First year

We do not assume you have any previous knowledge of computing, programming or operating systems. The courses studied in this year therefore lay the groundwork for future years.

All of the degrees include the following Core Courses:

Introduction to Computing and the Internet

This course covers, in the first semester, basic computing and communication skills, the fundamentals of computing – hardware, software, architecture, operating systems; how different kinds of data (e.g. numbers, text, images and sound) can be represented and stored on computer media. In the second semester we concentrate on the internet: fundamentals of networking, protocols for communication between networked computers, internet applications including e-mail, file transfer and web browsers, and wider issues such as data protection, viruses and security.

Introduction to Java and Object Oriented Programming

This is an introductory programming course using the popular object-oriented programming language Java. The computing field has never experienced anything like the Internet/World Wide Web/Java 'explosion' occurring today. Having completed this course, you will have the basic skills required to develop a wide range of computer applications, from web applications and Networking to conventional data-processing tasks. At the beginning of the course, you build your own website on which you can display all your work. To enable you to compile and run Java programs, you learn how to use the basics of the Linux operating system. Equipped with these 'tools', you proceed to the core of the course, where you learn the basic control and data structures of a programming language in an object oriented framework.

Mathematics for Computing

The topics in this course have been selected to provide you with the essential mathematical foundations necessary to follow the degree course in Computing. The mathematical knowledge from this course will be of benefit in your computing courses, and give you an understanding of the way that mathematicians and computer scientists express their ideas using symbols.

In addition, the first year of the Computing and Information Systems, Computer Science and Internet Computing BSc programmes includes:

Introduction to Information Systems

This course provides an overview of how businesses use computing to become and to remain competitive. Business environments today are, and are likely to remain, in a state of continuous and relentless change. You will learn how technological advances cause this state, what business challenges they bring and which strategies businesses apply in order to make the most of the opportunities created. Most of the course is taught from the viewpoint of a business professional, therefore you learn what managers expect of information systems and how you will be able to meet these expectations in your professional life.

While, the first year of the BA in Computing and Design for the World-Wide Web includes:

Introduction to Design in a Web Setting

This module, and the other design courses in the programme, is a mixture of design practice and theory. It will provide an introduction to design principles and the issues surrounding design practice. A large part of the course is studio-based and the course is aimed at helping students place their computing skills in the context of design.

For those students enrolled on the BSc Creative Computing we offer in the first year:

Creative Computing I

This course will enable you to develop an insight into the use of computers in creative applications. You will develop understanding of the core software tools, component media and technologies required for interactive media and the issues arising from their integration and develop critical skills and increase awareness of the issues involving software and interactivity. You will increase your skills in research (both in terms of existing artefacts and texts) and its application to the creation of a practical project supported by a well-grounded, clearly argued report of the project.

Students who are studying for the BSc in Information Technology will also take in their first year

Programming for IT

The purpose of this course is to equip students with the programming tools and understandings that are essential in their study of Information Technology at higher levels. It is aimed at students with little or no experience of programming. The course aims to familiarise students with the fundamentals of program design and implementation, object orientation, and data manipulation.

Second year

These second year courses extend the ideas introduced in the first year and embrace new subject areas. An important feature is the introduction of team working and the development of report writing skills. All students study at least the basics of each of the following subjects.

Database Systems

Database systems lie at the heart of the great majority of information systems. They bring together a host of very sophisticated mechanisms to make sure that data is available and can be accessed and updated quickly

safely and reliably by both people and programs, no matter how much data businesses need to store. The course centres around the data model used in over 90% of industrial applications – the relational model – and the corresponding database language SQL. Yet, the course allows sufficient scope for the presentation of modern issues and new trends in database systems. This course will take you through the three main stages of the development of database systems: data analysis, design and implementation. You will learn how to identify the data that is needed by an organisation, how to represent it with appropriate data structures and how to develop database systems to fulfil the identified requirements. Given the explosive growth of the Internet, database specialists are set to remain greatly valued and in great demand.

Software Projects: Software Engineering and Research Methods

This course provides an introduction to object-oriented software engineering principles and techniques from the perspective of both managers and developers. You learn about the solutions to the problems of specifying, designing, implementing, measuring, testing, debugging and maintaining large systems, using teams of programmers. The course will also contain an analysis of the psychological aspects of system design. You will use UML as the language for describing the various stages of the design development.

Graphical Object Oriented Programming and Website Design

You will be given an insight into the object-oriented approach to the design and implementation of software systems. The course also considers specific features of an object-oriented programming language designed to assist particular programming applications: in particular, graphical interfaces and event driven applications.

Graphical Object Oriented and Internet Programming in Java

This course considers specific features of the programming language Java. You will also gain a background in understanding the technical software aspects of how computers communicate across the internet. You will be introduced to the underlying principles of client server computing systems and will gain the required conceptual understanding, knowledge and skills to enable you to produce simple web-based computing systems in Java,

In addition, each of the individual degree programmes has courses which are designed especially for its students. These topics are continually under review; in a typical year the specialist second-year work may be as follows:

Computer Science students will learn about programming distributed systems, concurrency, data-structures and algorithms.

Computing and Information Systems students will learn about commercial implications of networks and will analyse case studies of object-oriented systems deployed in industry.

Internet Computing students will learn about programming distributed systems, concurrency, and web-based interfaces.

Web-based Computing and Design students will do theoretical and practice-based work with the Design Department. In this year, students will begin to put together the computing work and the design work, producing fully functional, well-designed dynamic websites.

Industrial placement year (optional)

You have the choice of an optional industrial placement year. Please see page 5 for further details.

Flexible final year

Project

In your final year, you will undertake a project, which will account for a large part of the year's work. If you study one of the BSc courses, your project will be a quarter of the final year. If you study the BA course, your project will take up twice as much of your time, be judged independently by a Computer Scientist and a Designer, and account for half of the year's work. The final year project gives you the opportunity to tackle a problem of your choice, by agreement, ideally related to a real world situation. It will help you to develop skills of direct use in employment, such as writing a report and giving a presentation. You will be assigned a supervisor (two supervisors if you are a BA student to guide you with this work.

Examples of computing projects undertaken by recent students include: a semantic spell checker; an evaluation of software complexity metrics; protocols for the Internet; computer security and viruses.

Options

In addition, BSc students will choose six options, and BA students will choose four options, from a list of courses offered by the Department. Below are examples of final year courses offered recently. This list is frequently revised to reflect the fast changing nature of business needs and research developments in Computer Science:

Web-Based Computing
Computer Security
Electronic Commerce
Decision Support and Executive Information Systems
Software Engineering Management
Information Systems Management
Data Compression
Neural Networks
Language, Design and Implementation
Artificial Intelligence
User Interface Design
Algorithmic Graph Theory.

Further details about the various options currently available can be found on our Department website at <http://www.goldsmiths.ac.uk/departments/computing/info.html>

Career opportunities

In great part due to the explosive development of the Internet, the IT sector has recently witnessed record growth rates, and these are continuously increasing. If you are thinking of choosing a career in this sector, you are definitely on the 'right track' - in terms of job opportunities and salaries, the IT sector is well ahead of most other industrial and commercial sectors.

Our degrees are designed to equip you with a wide range of knowledge and skills to meet the current demands of the industry and thus increase your career prospects. Here are some examples of the kind of employment that you might seek to enter on graduation:

Web Developer: a professional with a sound technological understanding, able to creatively apply computing technologies and digital media to devise systems for information dissemination and processing on the World-Wide Web.

Systems Analyst: such a position requires you to examine existing IT environments, talk to users and produce specifications of new or modified systems, and then liaise with other IT staff (such as programmers) to produce the new systems.

Systems Designer: this position requires more technical skills and knowledge than is needed to be a systems analyst. Familiarity with programming languages and relevant development software, the ability to think logically and precisely, good team working and communication skills are all essentials for this type of post.

Application Programmer: such a job will require you to have strong programming skills with respect to some programming paradigm, which can vary from a 'hard core' programming language, such as C++ or Java, to languages such as HTML or XML used in web development.

IT Consultant: you can be a consultant in any of the jobs listed above; you might work for a company of IT Consultants or you could be self-employed and work as a contractor.

Customer Service Adviser: such a job does not require a high degree of creativity, but requires detailed knowledge of a particular software system.

Other careers include Software Engineer, IT Technician, Systems Integration Developer, System Administrator, Market Researcher and many more. The range of organisations employing IT consultants is also extensive, including:

- IT consultancies;
- New Media companies;
- software development firms;
- computer systems manufacturers;
- financial institutions (such as banks, investment houses and pension providers);
- engineering companies (in such industries as aerospace, automotive and electronics);
- retail and service industries.

The College's Careers Service is available to provide free information and advice to students; we advise our students to take full advantage of these facilities during their time at Goldsmiths.

CONTACT US

Once you have read this booklet and the relevant sections of the *Undergraduate Prospectus*, if you have any specific queries about the degree programmes or the Department, please do not hesitate to contact us at:

Ms K Miller, Admissions Tutor, Computing and Information Systems, tel:020 7919 7850, fax 020 7919 7853, e-mail k.miller@gold.ac.uk

Application forms for part-time study are downloadable from the web at www.goldsmiths.ac.uk

If you have any other queries, or you would like a copy of the *Undergraduate Prospectus*, please contact us as follows:

UK and EU students:

Admissions Office

telephone 020 7919 7766 (direct line)

fax 020 7919 7509

e-mail admissions@gold.ac.uk

Prospectus hot line: telephone 020 7919 7537 (24 hours)

Overseas (non EU) students:

International Office

telephone +44 20 7919 7702 (direct line)

fax +44 20 7919 7704

e-mail international-office@gold.ac.uk

Prospectus hot line: telephone +44 20 7919 7273 (24 hours)

And if you would like to find out more...

Please visit our website at www.goldsmiths.ac.uk

Goldsmiths College, University of London, New Cross, London SE14 6NW, UK
telephone 020 7919 7171

Did you find this booklet helpful?

We would welcome any comments you have about the content or design of this booklet. Please e-mail *ext-comms@gold.ac.uk*, or write to Communications and Publicity, Goldsmiths College, University of London, New Cross, London SE14 6NW, stating the name of the booklet.

All information is treated in the strictest confidence and will in no way affect any application you make to Goldsmiths; no personal data is kept on file.

DISCLAIMER

The information in this booklet was correct in June 2004. Whilst it is as far as possible accurate at the date of publication, and the College will attempt to inform applicants of any substantial changes in the information contained in it, the College does not intend by publication of the Prospectus to create any contractual or other legal relation with applicants, accepted students, their advisers or any other person. The College is unable to accept liability for the cancellation of proposed programmes of study prior to their scheduled start; in the event of such cancellation, and where possible, the College will take reasonable steps to transfer students affected by the cancellation to similar or related programmes of study. Please see the Terms and Conditions in the relevant prospectus.

The College will not be responsible or liable for the accuracy or reliability of any of the information in third party publications or websites referred to in this booklet.

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