

## HIGHER EDUCATION ACHIEVEMENT REPORT

Jay Zern Ng  
Bachelor of Science (with Honours) Data Science  
First Class Honours  
01/07/2019

This Higher Education Achievement Report incorporates the model developed by the European Commission, Council of Europe and UNESCO/CEPES for the Diploma Supplement.

The purpose of the Supplement is to provide sufficient recognition of qualifications (diplomas, degrees, certificates etc). It is designed to provide a description of the nature, level, context and status of the studies that were pursued and successfully completed by the individual named on the original qualifications to which this Supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition.

Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why. The University of Warwick only produces HEARs in a digital format. Only HEARs accessed or verified via [www.gradintel.com](http://www.gradintel.com) can be considered valid.

### Section 1: Information identifying the holder of the qualification

- 1.1 Family name(s):** Ng
- 1.2 Given name(s):** Jay Zern
- 1.3 Date of birth (day/month/year):** 20/09/1996
- 1.4 Student identification number:** 1500212
- HESA identification number:** 1511635002127

HUSID (HESA Unique Student Identifier) is the unique national identifying number for students registered at a UK university. It is defined by HESA, the UK's Higher Education Statistics Agency.

### Section 2: Information identifying the qualification

- 2.1 Qualification achieved:** Bachelor of Science (with Honours)

The power to award degrees is regulated by law in the UK.

- 2.2 Main field(s) of study:** Data Science

- 2.3 Name and status of awarding institution:** The University of Warwick

The University of Warwick is self-governing and legally independent of government but subject to its policies and laws. The University is a degree awarding institution, operating under a Royal Charter which was established in 1965.

- 2.4 Name and status of institution (if different from 2.3) administering studies:** As awarding institution

- 2.5 Language(s) of instruction/examination:** English

## Section 3: Information on the level of the qualification

- 3.1 HESA level of qualification:** UK Bachelors Degree with Honours Level 6 (European HE 1st cycle qualification)

See section 8 for reference to nationally devised "level indicators" which relate to the qualification as contained within the Framework for Higher Education Qualifications in England, Wales and Northern Ireland, (QAA, 2008). Also available at <http://www.qaa.ac.uk/>.

- 3.2 Official length of programme:** 3 years full-time

- 3.3 Programme entry requirements or access:**

The University aims to admit students of the highest calibre, who have the academic potential and the motivation to succeed on its challenging courses. The University encourages applications from applicants from all backgrounds and it consistently evaluates the potential of each applicant individually and on their own merits.

## Section 4: Information on the contents and results gained

- 4.1 Mode of study:**

Year	Mode of Study
15/16	Full-time according to Funding Council definitions
16/17	Full-time according to Funding Council definitions
17/18	Full-time according to Funding Council definitions
18/19	Full-time according to Funding Council definitions

- 4.2 Programme requirements:**

The Data Science degree at Warwick is a unique multidisciplinary programme taught jointly by the departments of Statistics, Computer Science and Mathematics. It combines Statistical and Mathematical theory with exciting modern computer intensive methods for extracting information from large amounts of data.

The course teaches students to solve practical and theoretical problems about the data that arise in a huge variety of applications and to apply modern mathematical, statistical and computing methods to discuss patterns and establish knowledge based on observations. It also enhances a student's ability to think clearly, learn new ideas quickly, manipulate precise and intricate concepts, follow complex reasoning, construct logical arguments and expose illogical ones.

All three departments at Warwick are amongst the best departments in the UK, internationally renowned for research and teaching. In the last Research Excellence Framework, more than 90% of Warwick's research was recognised as internationally excellent or world-leading, with mathematical sciences achieving the maximum score of 100%. Our high research profile sustains academic quality and contributes topical examples and projects.

Our graduates are capable of success in a broad range of employment sectors. They are well prepared to enter emerging fields in need of quantitative analytical thinking and those where advances in technologies are producing vast amounts of data that are immensely challenging to analyse.

#### 4.3 Programme details, and the individual grades/marks/credits obtained:

Programme start date: 05/10/2015

Programme end date: 29/06/2019

##### Data Science 16/17

Year	Module Code	Title	Mark %	Credits	ECTS Credits
16/17	CS118-15	Programming for Computer Scientists	72	15.0	7.50
16/17	CS126-15	Design of Information Structures	75	15.0	7.50
16/17	CS139-15	Web Development Technologies	75	15.0	7.50
16/17	IB104-12	Mathematical Programming I	77	12.0	6.00
16/17	MA106-12	Linear Algebra	68	12.0	6.00
16/17	MA137-24	Mathematical Analysis	80	24.0	12.00
16/17	MA138-12	Sets and Numbers	60	12.0	6.00
16/17	ST104-12	Statistical Laboratory I	73	12.0	6.00
16/17	ST115-12	Introduction to Probability	65	12.0	6.00
16/17	ST116-12	Mathematical Techniques	55	12.0	6.00
TOTAL YEAR 16/17 CREDITS				141.0	70.50

##### Data Science 17/18

Year	Module Code	Title	Mark %	Credits	ECTS Credits
17/18	CS249-15	Digital Communications and Signal Processing	72	15.0	7.50
17/18	CS255-15	Artificial Intelligence	68	15.0	7.50
17/18	CS258-15	Database Systems	78	15.0	7.50
17/18	CS260-15	Algorithms	67	15.0	7.50
17/18	CS261-15	Software Engineering	74	15.0	7.50
17/18	MA258-12	Mathematical Analysis III	61	12.0	6.00
17/18	ST202-12	Stochastic Processes	90	12.0	6.00
17/18	ST208-12	Mathematical Methods	69	12.0	6.00
17/18	ST218-12	Mathematical Statistics Part A	62	12.0	6.00
17/18	ST219-12	Mathematical Statistics Part b	73	12.0	6.00
TOTAL YEAR 17/18 CREDITS				135.0	67.50

##### Data Science 18/19

Year	Module Code	Title	Mark %	Credits	ECTS Credits
18/19	CS342-15	Machine Learning	80	15.0	7.50
18/19	CS350-30	Data Science Project	91	30.0	15.00
18/19	CS355-15	Digital Forensics	77	15.0	7.50
18/19	ST301-15	Bayesian Statistics and Decision Theory	67	15.0	7.50
18/19	ST323-15	Multivariate Statistics	80	15.0	7.50

18/19	ST337-15	Bayesian Forecasting and Intervention	83	15.0	7.50
18/19	ST343-15	Topics in Data Science	76	15.0	7.50
TOTAL YEAR 18/19 CREDITS				120.0	60.00
TOTAL CREDITS AWARDED				396.0	198.00

#### 4.4 Grading scheme and, if available, grade distribution guidance:

The following classes of degree are awarded at undergraduate level, see <http://go.warwick.ac.uk/assessmentconventions> for more information:

Classification	Normal Average Grade
First Class Honours	At least 70%
Second Class Honours (1st Division)	At least 60%
Second Class Honours (2nd Division)	At least 50%
Third Class Honours	At least 40%
Pass	At least 35%

#### 4.5 Overall classification of the qualification (in original language): First Class Honours

## Section 5: Information on the function of the qualification

### 5.1 Access to further study:

This qualification may allow access to further study (at FHEQ level 7 or for equivalent EHEA second cycle qualifications) subject to individual requirements of the institution concerned.

### 5.2 Professional status (if applicable):

Not applicable

## Section 6: Additional information

The University of Warwick has agreed a list of activities undertaken outside the academic curriculum that will be recorded in the HEAR. All activities recorded in this section have been verified by the University. This section also includes any departmental or University prizes won. Other activities and achievements not included in the HEAR, may be recorded in a CV or e-portfolio. Visit <http://www.warwick.ac.uk/hear> for a full list of activities.

Note: The HEAR was introduced at the University of Warwick at the beginning of the 2011/12 academic year, and therefore includes only information about activities undertaken and prizes awarded in the 2011/12 academic year or later.

### 6.1 Additional information:

2015/16

#### Economics Personal Development Module

This student has successfully completed the Economics Personal Development Module and achieved a Pass with Distinction; having attended a variety of skills development, careers and educational sessions, including Academic Writing, Economics Lecture Series, the Undergraduate Mentor Scheme and Careers Workshops.

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**2016/17**

#### Society Executive

Responsible for the running of a Students' Union Society, alongside other executive members - Warwick Finance Societies : Co-Heads of Sports: Football

**2017/18**

#### Society Executive

Responsible for the running of a Students' Union Society, alongside other executive members - Economics Summit : Tech Head Coordinator

## 6.2 Further information sources:

The University of Warwick is one of the UK's leading universities, with an acknowledged reputation for excellence in research and teaching, for innovation, and for links with business and industry. Its mission is:

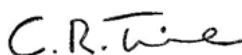
- To become a world leader in research and teaching
- Through research of international excellence, to increase significantly the range of human knowledge and understanding
- To equip graduates to make an important contribution to the economy and to society
- To serve our local region - academically, culturally and economically
- To continue to make a Warwick education available to all those able to benefit from it, regardless of economic or social circumstances.

Find out more at <http://www.warwick.ac.uk/about>.

## Section 7: Certification of the HEAR

**7.1 Date** 01/07/2019

**7.2 Signatory:** Dr Chris Twine



**7.3 Official capacity:** Academic Registrar

**7.4 Official stamp or seal**



## Section 8: Information on the national higher education system

### Description of Higher Education in England, Wales and Northern Ireland

In England, Wales and Northern Ireland<sup>1</sup>, higher education institutions are independent, self-governing bodies active in teaching, research and scholarship. They are established by Royal Charter or legislation and most are part-funded by government. Higher education (HE) is provided by many different types of institution. In addition to universities and university colleges, whose charters and statutes are made through the Privy Council which advises the Queen on the granting of Royal Charters and incorporation of universities, there are a number of publicly-designated and autonomous institutions within the higher education sector. Publicly funded higher education provision is available in some colleges of further education by the authority of another duly empowered institution. Teaching to prepare students for the award of higher education qualifications can be conducted in any higher education institution and in some further education colleges.

#### Degree awarding powers and the title 'university'

All universities and many higher education colleges have the legal power to develop their own courses and award their own degrees, as well as determine the conditions on which they are awarded. Some HE colleges and specialist institutions without these powers offer programmes, with varying extents of devolved authority, leading to the degrees of an institution which does have them. All universities in existence before 2005 have the power to award degrees on the basis of completion of taught courses and the power to award research degrees. From 2005, institutions in England and Wales that award only taught degrees ('first' and 'second cycle') and which meet certain numerical criteria, may also be permitted to use the title 'university'. Higher education institutions that award only taught degrees but which do not meet the numerical criteria may apply to use the title 'university college', although not all choose to do so. All of these institutions are subject to the same regulatory quality assurance and funding requirements as universities; and all institutions decide for themselves which students to admit and which staff to appoint. Degrees and other higher education qualifications are legally owned by the awarding institution, not by the state. The names of institutions with their own degree awarding powers ("Recognised Bodies") are available for download at: <http://www.bis.gov.uk/policies/higher-education/recognised-uk-degrees/recognised-bodies>

Higher education institutions, further education colleges and other organisations able to offer courses leading to a degree of a Recognised Body are listed by the English, Welsh and Northern Irish authorities, and are known as "Listed Bodies". View the list at: <http://www.bis.gov.uk/policies/higher-education/recognised-uk-degrees/listed-bodies>

#### Qualifications

The types of qualifications awarded by higher education institutions at sub-degree and undergraduate (first cycle) and postgraduate level (second and third cycles) are described in the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (FHEQ). This also includes qualification descriptors that were developed with the HE sector by the Quality Assurance Agency for Higher Education (QAA - established in 1997 as an independent UK-wide body to monitor the standard of higher education provision - [www.qaa.ac.uk](http://www.qaa.ac.uk)). The FHEQ was self-certified as compatible with the Framework for Qualifications of the European Higher Education Area, the qualifications framework adopted as part of the Bologna Process, in February 2009. Foundation degrees, designed to create intermediate awards strongly oriented towards specific employment opportunities, were introduced in 2001. In terms of the European Higher Education Area they are "short cycle" qualifications within the first cycle. The FHEQ is one component of the Credit and Qualifications Framework for Wales (CQFW). The Qualifications and Curriculum Authority (QCA), the Department for Children, Education, Lifelong Learning and Skills, Wales (DCELLS) and the Council for

Curriculum Examination and Assessment, Northern Ireland (CCEA) have established the Qualifications and Credit Framework (to replace, in time, the National Qualifications Framework (NQF)). These authorities regulate a number of professional, statutory and other awarding bodies which control VET and general qualifications at all levels. The QCF is also incorporated into the CQFW. There is a close association between the levels of the FHEQ and the NQF (as shown overleaf), and other frameworks of the UK and Ireland (see 'Qualifications can cross Boundaries' <https://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-can-cross-boundaries.pdf>)

#### Quality Assurance

Academic standards are established and maintained by higher education institutions themselves using an extensive and sophisticated range of shared quality assurance approaches and structures. Standards and quality in institutions are underpinned by the universal use of external examiners, a standard set of indicators and other reports, by the activities of the QAA, and in professional areas by relevant professional, statutory and regulatory bodies. This ensures that institutions meet national expectations described in the FHEQ: subject benchmark statements, the Code of Practice and programme specifications. QAA conducts peer-review based audits and reviews of higher education institutions with the opportunity for subject-based review as the need arises. The accuracy and adequacy of quality-related information published by the higher education institutions is also reviewed. QAA also reviews publicly funded higher education provision in further education colleges.

#### Credit System

Most higher education institutions in England and Northern Ireland belong to one of several credit consortia and some operate local credit accumulation and transfer systems for students moving between programmes and/or institutions. A framework of national guidelines, the Higher Education Credit Framework for England, was launched in 2008. Credit is also an integral part of the CQFW and the QCF. It may be possible for credit awarded in one framework to be recognised by education providers whose qualifications sit within a different framework. HE credit systems in use in England, Wales and Northern Ireland are compatible with the European Credit Transfer System (ECTS) for accumulation and transfers within the European Higher Education Area, and are used to recognise learning gained by students in institutions elsewhere in Europe.

#### Admissions

The most common qualification for entry to higher education is the General Certificate of Education at 'Advanced' (A) level. Other appropriate NQF level 3 qualifications and the kite-marked Access to HE Diploma may also provide entry to HE. Level 3 qualifications in the CQFW, including the Welsh Baccalaureate, also provide entry, as do Scottish Highers, Advanced Highers or qualifications at the same levels of the Scottish Credit and Qualifications Framework. Part-time and mature students may enter HE with these qualifications or alternatives with evidenced equivalent prior formal and/or experiential learning. Institutions will admit students whom they believe to have the potential to complete their programmes successfully.

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<sup>1</sup> The UK has a system of devolved government, including for higher education, to Scotland, to Wales and to Northern Ireland. This description is approved by the High Level Policy Forum which includes representatives of the Department for Business, Innovation and Skills, the Scottish Government, the Welsh Assembly Government, the Higher Education Funding Councils for England, Scotland and Wales, the Quality Assurance Agency (QAA), Universities UK (UUK), GuildHE and the National Recognition Information Centre for the UK (UK NARIC)



## Diagram of higher education qualification levels in England, Wales and Northern Ireland

