

Office for  
Students



# Technical algorithms for institutional performance measures

Changes 2020 to 2021

**Enquiries to** [providermetrics@officeforstudents.org.uk](mailto:providermetrics@officeforstudents.org.uk)

**Publication date** 11 March 2021

## Contents

Introduction	3
Purpose	3
Guidance for using this document	4
Enquiries and feedback	4
<b>Description of changes</b>	<b>5</b>
Changes to data infrastructure	5
Other minor refinements	6
Summary lists	8
<b>List of abbreviations</b>	<b>10</b>

# Introduction

## Purpose

1. This is one of a series of technical documents that provide detail of the definitions and methodology used by the Office for Students (OfS) in constructing institutional performance measures.<sup>1</sup> Wherever possible we have used consistent definitions and approaches, to minimise the burden on higher education providers of understanding these.
2. This document provides a technical description of the categorisations applied to individualised student data records and used by the OfS in March 2021 to generate data indicators underpinning the OfS's functions related to the regulation of access and participation. The definitions in this document apply to some of the indicators constructed by the OfS as our key performance measures, and used more widely in reporting sector-level analysis of patterns and trends in student outcomes.<sup>2</sup>
3. The descriptions provided in this document are also relevant to understanding the construction of the indicators that have been used in the assessment of registration condition B3 for the purpose of initial registration and ongoing monitoring to date. Following initial proposals on our approach to regulating quality and standards in higher education<sup>3</sup>, it is anticipated that the construction of the indicators to be used in our future approach will be the subject of further consultation during 2021. The definitions and algorithms relating to this function, as described in this document, remain relevant until such time as they are superseded by new guidance.
4. This document supplements, and should be read alongside, the following documents:
  - 'Technical algorithms for institutional performance measures: 2021 core algorithms'<sup>4</sup>
  - 'Technical algorithms for institutional performance measures: Regulatory indicators, methodology and rebuild descriptions'<sup>5</sup>
  - (for access and participation purposes) 'Access and participation data resources: Supporting data user guide'.

---

<sup>1</sup> See [www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/](http://www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/).

<sup>2</sup> See [www.officeforstudents.org.uk/about/measures-of-our-success/](http://www.officeforstudents.org.uk/about/measures-of-our-success/).

<sup>3</sup> See [www.officeforstudents.org.uk/publications/consultation-on-regulating-quality-and-standards-in-higher-education/](http://www.officeforstudents.org.uk/publications/consultation-on-regulating-quality-and-standards-in-higher-education/).

<sup>4</sup> See [www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/](http://www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/).

<sup>5</sup> See [www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/](http://www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/).

The algorithms used to define the OfS's institutional performance measures remain largely consistent with the '2020 core algorithms'<sup>6</sup> published previously. This document explains the nature and impact of changes to these algorithms compared with their predecessor.

## Guidance for using this document

5. The algorithms referenced in this document are applied to the 2010-11 to 2019-20 individualised student records collected annually by the Higher Education Statistics Agency (HESA) or the Education and Skills Funding Agency (ESFA). This document is aimed at readers with in-depth knowledge of the HESA, HESA alternative provider or Individualised Learner Record (ILR) student data.
6. Individualised student data files are supplied to higher education providers by the OfS to support their understanding of our approach to calculating institutional performance measures. These files contain data relating to a provider's own students and show how they have been categorised according to the algorithms referenced in this document. Similar files were made available to providers in 2020, containing the categorisations applied on the basis of our previously published algorithms.

## Enquiries and feedback

7. Enquiries regarding the algorithms and changes described within this document, and any other questions about the OfS's approach to the construction and use of institutional performance measures, should be raised with [providermetrics@officeforstudents.org.uk](mailto:providermetrics@officeforstudents.org.uk), 0117 931 7230.

---

<sup>6</sup> See [www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/](http://www.officeforstudents.org.uk/data-and-analysis/institutional-performance-measures/technical-documentation/).

# Description of changes

## Changes to data infrastructure

8. For the first time, the algorithms detailed in the 2021 core algorithms document incorporate the specifications of the 2019-20 individualised student data returns as submitted to HESA or the ESFA.
9. A number of algorithms have been refined or expanded in order to incorporate the underlying changes in the specifications of the 2019-20 individualised student data. These have been summarised in Table 1.
10. The primary change in relation to 2019-20 data has been the change in name of the HESA Alternative Provider record to the HESA Student Alternative record. The values which IPSOURCE can take have been updated accordingly.
11. For HESA Student and HESA Student Alternative data, the Higher Education Classification of Subjects (HECoS) framework has been implemented for 2019-20 student data. This replaces the use of the Joint Academic Coding System (JACS). HESA has provided further information about this change.<sup>7</sup> Algorithms have been updated to reflect this change where relevant.<sup>8</sup>
12. Other minor changes have been made to underlying student data returns, such as the removal of fields and addition of values in existing fields.

**Table 1: Summary of changes to algorithms due to introduction of 2019-20 data**

Algorithm name	Description of change
IPSOURCE	Value HESAAP changed to HESASAR to reflect change in name of the HESA Alternative Provider record to the HESA Student Alternative record.
IPDENT	Minor refinement to algorithm to reflect introduction of HECOS in 2019-20 HESA data.
IPLEVELNUM	Minor addition to algorithm to incorporate new COURSEAIM codes in underlying HESA specifications.
IPOFSQAIM	Minor addition to algorithm to incorporate new COURSEAIM codes in underlying HESA specifications.
IPAWARDLEVELNUM	Minor addition to algorithm to incorporate new XQOBTN01 codes in underlying HESA specifications.
IPAWARD_DETAIL	Minor addition to algorithm to incorporate new XQOBTN01 codes in underlying HESA specifications.
IPAWARDLEVEL	Minor addition to algorithm to incorporate new XQOBTN01 codes in underlying HESA specifications.
IPAPPRENTICE	Algorithm has been revised to account for the removal of PROGTYPE from the HESA Student record for 2019-20. It has also been revised to include a more comprehensive set of INITIATIVE values.

<sup>7</sup> See <https://www.hesa.ac.uk/support/documentation/hecos>.

<sup>8</sup> More generally, the introduction of the new HECoS system for coding subjects in 2019-20 causes some discontinuity in the subject time series between 2018-19 and 2019-20, which should be taken into account when comparing the distribution of subjects between these years.

Algorithm name	Description of change
IPSBJ_CAH2	Minor refinement to algorithm to reflect introduction of HECOS in 2019-20 HESA data.
IPSBJ_CAH3	Minor refinement to algorithm to reflect introduction of HECOS in 2019-20 HESA data.
IPFPE	Minor refinement to algorithm to reflect introduction of HECOS in 2019-20 HESA data.
IPGRADECOMB	Minor addition to algorithm to account for newer BTEC QUALTYPE codes.
IPGRADECOMB_HESA	Minor addition to algorithm to account for newer BTEC QUALTYPE codes.
IPGRADECOMB_LINKED	Minor addition to algorithm to account for newer BTEC QUALTYPE codes.
IPENTQUALGRP	Minor addition to algorithm to account for newer BTEC QUALTYPE codes.
IPENTQUALGRP_HESA	Minor addition to algorithm to account for newer BTEC QUALTYPE codes.
IPENTQUALGRP_LINKED	Minor addition to algorithm to account for newer BTEC QUALTYPE codes.
IPDUP	Minor refinement to algorithm to reflect introduction of HECOS in 2019-20 HESA data.
IPAWARDBOD	This algorithm has been updated to incorporate additional information provided by the HESA Student Alternative record for 2019-20.

## Other minor refinements

### Course length

13. The IPCRSELGTH field has been expanded to be defined for both HESA Student and HESA Student Alternative records (IPSOURCE = HESASTU, HESASAR) as well as ILR records. Additionally, there has been a minor change to the field for ILR records to deal with students who study for less than two weeks. Previously, these students were given an IPCRSELGTH value of 0, whereas now they are assigned a value of 1. This has been done for better alignment with other OfS technical algorithms, such as the funding post-collection outputs.<sup>9</sup>

### Domicile

14. The definition of a student's domicile, indicated by IPDOM, has been expanded to better assign students with an unknown domicile. This has resulted in some students previously assigned to the OTHER category now falling into a newly defined UNKNOWN category.
15. In addition to changes to students where domicile is genuinely unknown, there has been work to better assign students recorded on the ILR who had previously been assigned to the OTHER category. Some of these records now appear as UK-domiciled, taking IPDOM values of E, S, W and N as appropriate based on their home postcode. The vast majority of these records were previously missing domicile information due to the relevant data item having an optional collection status for ILR records without a learning delivery higher education entity requirement (IPHEENTITYFLAG = 0). As a result, this change has minimal effect on calculated

<sup>9</sup> See [www.officeforstudents.org.uk/data-and-analysis/post-collection-outputs/ilr-post-collection-outputs/](http://www.officeforstudents.org.uk/data-and-analysis/post-collection-outputs/ilr-post-collection-outputs/).

indicators, as IPHEENTITYFLAG = 0 students are currently excluded from most indicator populations.

### **IMD fields**

16. There have been minor changes to the fields indicating a student's index of multiple deprivation (IMD) quintile. Previously, there were two versions of this field to reflect different versions of the underlying IMD publications, IPIMD and IPIMDEXPERIMENTAL. Previously IPIMD reflected the older versions of the national IMD publications, such as English IMD 2015, and IPIMDEXPERIMENTAL reflected the newer versions, such as English IMD 2019.
17. These IMD fields have been redefined so that IPIMD reflects the newer versions, and IPIMDHISTORIC has been created to reflect historic versions of the IMD publications.
18. In addition to IPIMD and IPIMDHISTORIC, a new field has been introduced called IPIMDNATION. This is a supplementary field which assigns IPIMD based on the nation of the student's home postcode rather than their domicile.

### **Location of study postcode**

19. There have been minor refinements to the IPLOCPOSTCODE algorithm which assigns a student's location of study postcode.
20. The IPLOCPOSTCODE algorithm for students from the HESA Student Alternative record (IPSOURCE = HESASAR) has been adapted to include information from the HESA Provider Profile record for 2019-20.
21. A minor refinement has also been made for sub-contracted students in the HESA Student record (IPSOURCE = HESASTU). For students taught at a different provider to their registering provider (where IPUKPRNRC is not equal to IPUKPRNTC), it can be difficult to assign a location of study. The algorithm has been refined to consider the teaching provider's contact postcode as well as the legal postcode.

### **Degree attainment fields**

22. The algorithms for IPDOQUALPOP and IPDODEGCLASS, which define the population and outcome for degree attainment indicators, have been reformulated for better consistency with other algorithms.
23. The IPDOQUALPOP algorithm has been reformulated to be more consistent with other algorithms by using IPAWARDLEVEL rather than XQLEV501. The IPDODEGCLASS algorithm has been simplified to use IPDODEGCLASS to determine the population for which it is calculated, rather than relying on further restrictions.
24. These changes do not have any material effect on attainment indicators.

### **Ethnicity**

25. The definition of the variable IPETHNICDETAIL has been revised to include a single category for white students. This has been done for consistency with other OfS publications and to better reflect the limitations of the underlying student records.
26. IPETHNIC has been adapted to reflect the change in IPETHNICDETAIL.

## Summary lists

27. As a reference guide, the following lists summarise all the variable changes included in the 2021 core algorithms.

### Renamed variables

- IPAGEBAND has been renamed to IPSTARTAGEBAND.

### Additional variables

- IPINDMODE (indicates a student's mode of study for use within institutional performance indicators)
- IPHECOS (indicates the student's HECOS categories where possible)
- IPSTARTAGE (identifies the student's age on entry)
- IPIMDHISTORIC (reflects the IMD quintile of a student using historic national IMD publications)
- IPIMDNATION (reflects the IMD quintile of a student using the nation of their home postcode rather than their domicile)
- IPSTUDYLOCTYPE (identifies whether a student has moved from their home postcode to attend university, taking into account distance learning and non-UK-domiciled students).

### Removed variables

- IPAGE18 (superseded by IPSTARTAGE)
- IPFPE\_YX, IPJACS\_YX and IPSBJ\_CAH2\_YX (unnecessary variables)
- IPLOCAL (replaced and enhanced by IPSTUDYLOCTYPE).

### Refined variables

- IPSOURCE (value HESAAP changed to HESASAR to reflect change of name of underlying HESA record)
- IPLEVELNUM, IPOFSQAIM, IPAWARDLEVELNUM, IPAWARD\_DETAIL, IPAWARDLEVEL (updated to include new COURSEAIM and XQOBTN01 values for 2019-20 data)
- IPCRSELGTH (definition extended to cover HESA Student and HESA Student Alternative records, as well as a minor refinement to ILR version)
- IPAPPRENTICE (adapted to account for removal of PROGTYPE field from HESA Student record with further minor refinement)
- IPDENT, IPSBJ\_CAH3, IPSBJ\_CAH3, IPFPE, IPDUP (adapted to take into account HECOS for 2019-20 HESA data)
- IPETHNICDETAIL and IPETHNIC (categories for white students simplified)



- IPDOM (unknown category added with better mappings for students with limited information)
- IPIMD (updated to reflect newer IMD publications)
- IPLOCPOSTCODE (revised to include more information for 2019-20 HESA Student Alternative records, as well as enhancement for sub-contracted HESA Student students)
- IPGRADECOMB, IPGRADECOMB\_HESA, IPGRADECOMB\_LINKED, IPENTQUALGRP, IPENTQUALGRP\_HESA, IPENTQUALGRP\_LINKED (coverage of BTEC QUALTYPES extended)
- IPDOQUALPOP, IPDODEGCLASS (reformulation of algorithms)
- IPAWARDBOD (revised to include more information for 2019-20 HESA Student Alternative records).

## List of abbreviations

<b>CAH</b>	Common Aggregation Hierarchy
<b>ESFA</b>	Education and Skills Funding Agency
<b>FPE</b>	Full-person equivalence
<b>HECOS</b>	Higher Education Classification of Subject
<b>HESA</b>	Higher Education Statistics Agency
<b>ILR</b>	Individualised Learner Record
<b>IMD</b>	Index of Multiple Deprivation
<b>JACS</b>	Joint Academic Coding System
<b>OfS</b>	Office for Students



© The Office for Students copyright 2021

This publication is available under the Open Government Licence 3.0 except where it indicates that the copyright for images or text is owned elsewhere.

[www.nationalarchives.gov.uk/doc/open-government-licence/version/3/](http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/)