

Research Profiles of ARUA Universities: Emerging Trends (2015—2017)



ARUA
African Research
Universities Alliance

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PREFACE

Ernest Aryeetey

ARUA Secretary-General



The African Research Universities Alliance (ARUA) was established in March 2015 after 16 Vice Chancellors of African universities agreed to work together on expanding the scope of research engagements of their universities. The coming together of these universities was largely through a process of self-selection. They were generally considered to be the flagship universities in countries that had some experience of decent higher education. Each of the 16 universities had a relatively long and rich history, known not only in their countries, but in the region and globally.

ARUA's vision is to make African researchers and institutions globally competitive while contributing to the generation of knowledge for socio-economic transformation in the region. ARUA is on a mission to strengthen African universities through effective capacity-building that comes from working together as leading institutions for the task of significantly increasing their research output.

ARUA currently pushes its agenda in four areas,

namely,

- Collaborative Research
- Training and support for PhDs
- Capacity Building for Research Management
- Research Advocacy

In pursuing its mission, ARUA is currently undertaking several initiatives towards effective collaboration, including the setting up of 13 Centres of Excellence as the main instrument for the conduct of its business. These centres are hosted by selected member universities. To continue with the approach of identifying member universities to undertake specific tasks on behalf of the collective, it is necessary to establish the situation in various universities. Also, as universities work to transform their institutions into globally competitive research universities, it is essential to establish whether their efforts are paying off or not. This makes a baseline for university structures and performance at inception important. Such a baseline will provide a benchmark against which future changes would be measured. The ARUA Board, therefore, agreed in 2016 that the Management should organise a study of how each

of the member universities was positioned in terms of its academic programmes, graduate enrolment, performance, and in the management of research.

This report is a product of the first attempt to assemble data from member universities to be used for the purpose of benchmarking. It was undertaken under the coordination of Professor Gerald Wangenge-Ouma of the University of Pretoria, who also authored the report. He worked closely with the data offices of member universities to assemble the data and analyse it for the period 2015-2017. ARUA is very grateful to Professor Ouma for the commitment and the diligence he showed in this work.

Before the data-gathering exercise began, ARUA worked with SciSTIP at the Centre for Research on Evaluation, Science and Technology (CREST) of Stellenbosch University to organise a stakeholder event in Addis Ababa that eventually led to agreement on the indicators to be used for the exercise and the data required for them. The significant roles played by Professor Johann Mouton and Professor Nico Cloete in this exercise are acknowledged.

ARUA would also like to thank all those who in diverse ways have contributed to make the production of this first report possible. We appreciate the contribution of the staff at the

various data centres of our member universities who were pressured to work tirelessly to generate the data.

ARUA is also very appreciative of the support that it received from the Carnegie Corporation of New York (CCNY) to undertake this project. Beyond the generous grant, staff of CCNY showed considerable interest in how the study was organised and in its output. This was most welcome.

Several lessons were learned in this data-gathering exercise. A major one is that not all ARUA Universities have well established institutional data offices that can produce the needed data on a regular basis. Even when such an office exists, there is no assurance that it is properly equipped and resourced to undertake the task in a competent manner. The result is that some of the data becomes compromised and needs to be collected again. This happened at quite a few of our universities and these have been the main reasons for the delay in completing this task on schedule.

Having completed this report, ARUA is now paying attention to strengthening the institutional data offices of member universities where such strengthening is deemed necessary. It is planned that the data-gathering and analysis exercise will be done on a continuous basis.



1.0 Introduction

This report presents an analysis of Phase One of a data benchmarking study of ARUA-member universities, focusing on the research profiles of the universities. The study, which was funded by the Carnegie Corporation of New York, had the following objectives:

- (a) To collect data against selected research indicators;
- (b) To Identify gaps in institutional capacity to gather and analyse data against selected indicators;
- (c) To build capacity for developing the appropriate institutional structures and expertise for gathering benchmarking data; and
- (d) To establish a collective database or on-line repository.

The project is significant in various ways, inter alia:

- (a) For benchmarking against other ARUA universities;
- (b) For tracking performance (against institutional/ARUA/national goals), identifying areas that require interventions, and setting targets;
- (c) For evidence-based decision support – for joint research, for identification of areas of strength, internal differentiation at institutions, resource allocation, skills development, and capacity building;
- (d) For driving institutional change and assessing improvements over time; and
- (e) For steering alignment with ARUA’s objectives and national policy imperatives.

The report presents research profiles of ARUA universities, specifically:

- (a) Postgraduate enrolments (by level, gender and study fields);
- (b) Postgraduate graduates (by level, gender, study fields and completion times);
- (c) Number of post-doctoral research fellows;
- (d) Academic staff profile (by qualification level, gender, and rank);
- (e) Total estimated research funding (US \$); and
- (f) Number of registered patents.

The report provides an aggregated analysis of the research profiles of thirteen ARUA-member universities over the period 2015 - 2017. Detailed data for individual universities are provided in the appendix. The thirteen universities are: University of Ghana (UG), University of Ibadan (Ibadan), University of Lagos (Lagos), Makerere University (Makerere), Rhodes University (Rhodes), Stellenbosch University (SU), University of Cape Town (UCT), University of KwaZulu-Natal (UKZN), University of Pretoria (UP), University of the Witwatersrand (Wits), University of Dar es Salaam (UDSM), Cheikh Anta Diop University (UCAD) and Addis Ababa University (Addis Ababa).

1.1 Data Collection

The variables or indicators against which data are presented were developed and agreed upon through a consultative process. The indicators were first discussed at a workshop in February 2018 in Addis Ababa, Ethiopia. Subsequently, a list of indicators was forwarded to all the ARUA universities for feedback and consensus.

After consensus was realised on the indicators, three data tables were developed and forwarded to ARUA universities in January 2019. The tables were revised after receiving feedback and forwarded back to the

universities in early March 2019 for the universities to start collecting data. The data tables addressed concerns raised regarding some of the indicators, for example, the disaggregation of fields of study, which was revised by adopting the OECD's (Organisation for Economic Co-operation and Development) Classification of Science.

The data tables were used to collect the following data for 2015 - 2017:

- (a) Student data (enrolments, field of study, gender, study level and graduates).
- (b) Staff data (number of academics, rank, qualification, field of study, postdoctoral fellows, and technical support staff).
- (c) Research funding and patents.

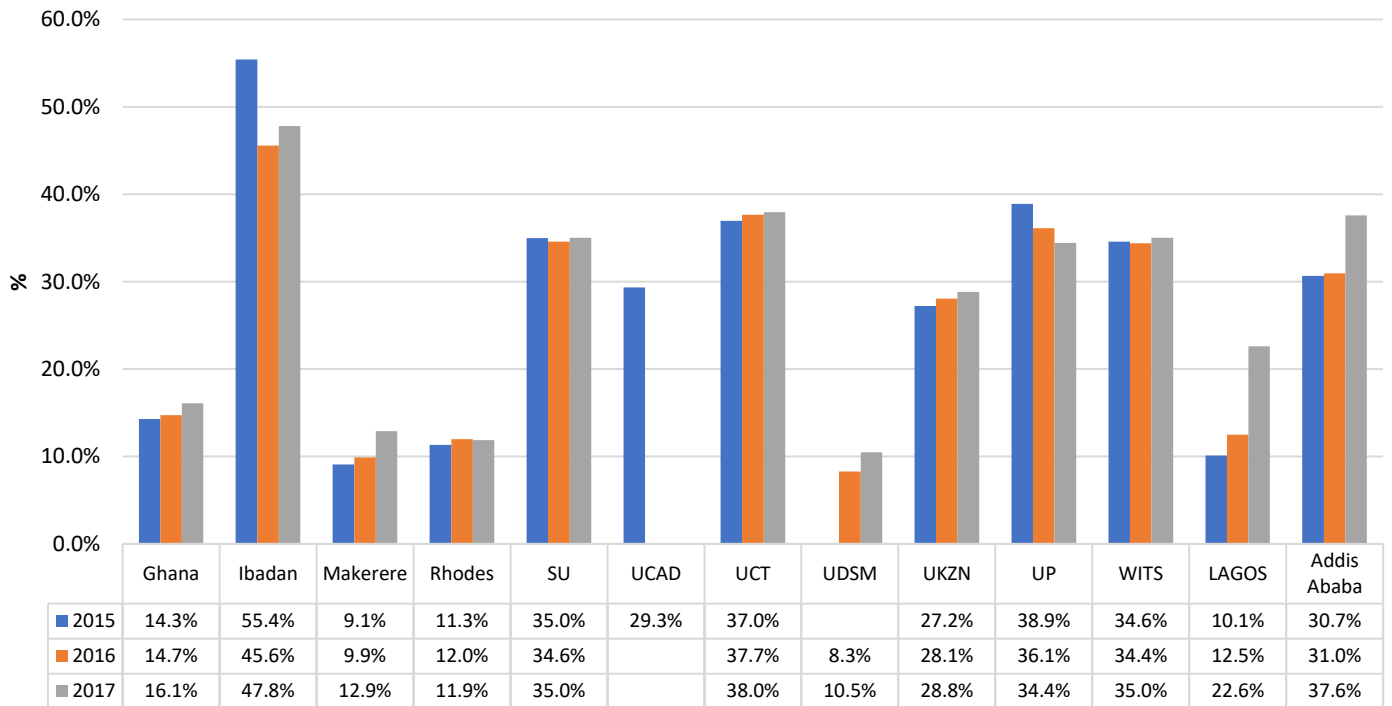
Data collection was an iterative process that entailed, inter alia, continuous engagement with the contact persons at the ARUA universities. Once a university submitted their data, they were checked for completeness and accuracy. Any inconsistencies and inaccuracies that were identified were reported to the universities and, after the corrections were made, the data were analysed and sent back to the universities for final verification. Fifteen universities submitted their data but only thirteen universities' data are presented in the report. These data have been verified by the thirteen universities.

Not all the universities whose data are presented in this report provided data for all the variables. UCAD, for example, provided data for one year only (2015) and UDSM provided data for two years (2016 – 2017). Because of incomplete data, not all the thirteen universities are represented in the analysis across all the variables.

2.0 Student enrolments

Figures 2.1 – 2.4 and Table 2.1 capture various postgraduate student enrolment trends. Postgraduate enrolments include master's, PhD, and postgraduates lower than master's, for example, honours in South Africa and postgraduate diplomas.

Figure 2.1: Postgraduate enrolments as a percentage of all enrolments (undergraduates and postgraduates), 2015 – 2017

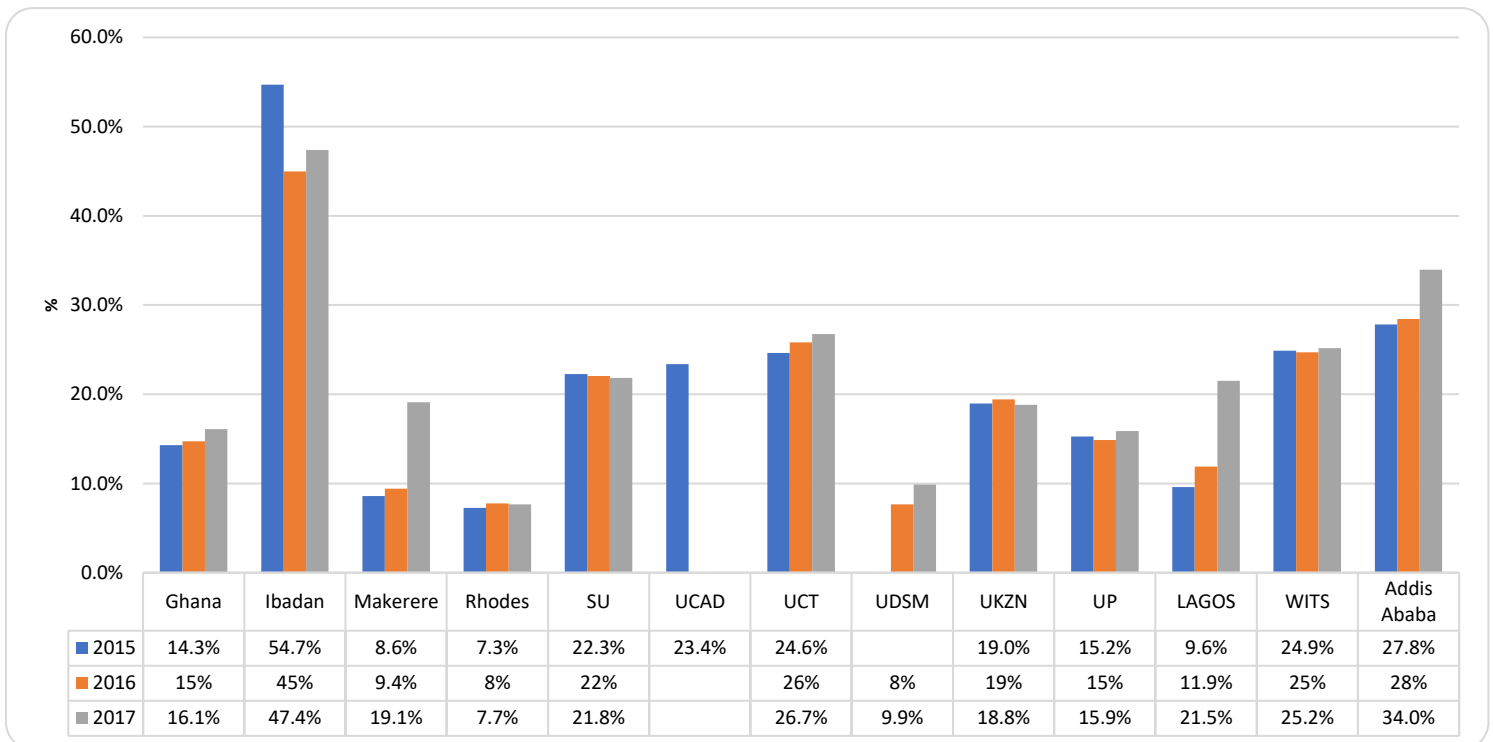


The main observation from Figure 2.1 is that all the universities, apart from Ibadan, are predominantly undergraduate universities given that postgraduate enrolment accounts for less than 40% of the total student enrolment. UDSM had the lowest proportion of postgraduate students (10.5% in 2017), followed by Makerere with 12.9% in 2017. The Figure shows a fairly stable postgraduate enrolment pattern, except for Ibadan which experienced a decline from 2015 – 2017 and Lagos and Addis Ababa which recorded strong growth - 10.1% - 22.6% and 30.7% - 37.6% respectively - over the same period.

Shape of postgraduate student enrolments

Figure 2.2 below shows the ‘shape’ of postgraduate enrolments at the thirteen universities. It excludes honours and postgraduate diplomas, which are included in Figure 2.1. The data in figure 2.2, compared to Figure 2.1, shows that South African universities (Rhodes, SU, UCT, UKZN, UP and Wits) have a significant number of postgraduate students enrolled in postgraduate programmes below master’s. For example, while the share of postgraduate enrolments at UKZN was 28.8% in 2017, its share for master’s and doctoral enrolments was 18.8%.

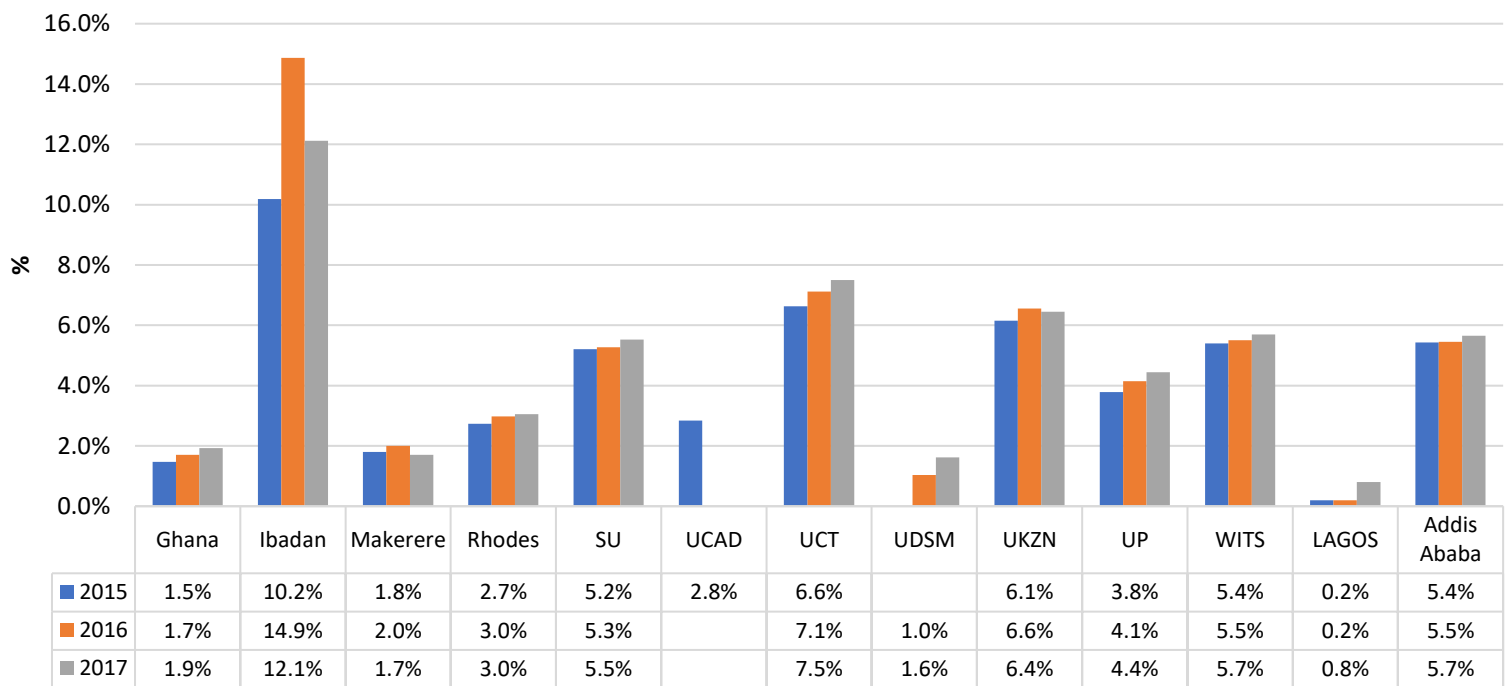
Figure 2.2: Master’s and doctoral enrolments as a % of total enrolments, 2015 – 2017



Doctoral enrolments

Doctoral enrolments are important for the production of the next generation of researchers and scholars, strengthening of research capacity, production of academics both for ARUA universities and other institutions, especially those without capacity for doctoral education, and the production of high-level skills for academia and the economy. Figure 2.3 below shows the proportion of doctoral enrolments across the thirteen universities. All the universities, except Ibadan, have a doctoral enrolment of below 10% of the total student enrolment. At UDSM, Makerere, Lagos, UG and Addis Ababa, doctoral enrolments account for less than 2% of the total student population.

Figure 2.3: Doctoral enrolments as a % of total enrolments, 2015 – 2017



Master's and doctoral enrolments by field of study

ARUA universities offer an extensive range of doctoral programmes, across the major broad fields of study, namely, natural sciences, engineering and technology, agricultural sciences, social sciences, humanities, business, economics and management studies (see Table 2.1). Table 2.1 captures the proportion of master's and doctoral enrolments across these broad fields of study. The following are the key trends that can be drawn from Table 2.1:

- All the universities, except Rhodes, UCT and Lagos, offer master's and doctoral programmes in all the major fields of study. The latter group of universities does not offer master's and doctoral programmes in agricultural sciences. Rhodes also does not offer programmes in engineering and technology. The broad range of programmes provides opportunities for multi- and transdisciplinary research within and across the institutions, and also joint postgraduate supervision.
- The proportion of master's and doctoral enrolments across the various fields of study is diverse. At UG and Stellenbosch, the largest share of master's and doctoral enrolments in 2017 was in Business, Economics and Management Studies (BEMS); at Ibadan, UP, Lagos and Addis Ababa, the largest proportion of enrolments was in Social Sciences (29.2%, 20.6%, 29.2, and 20.03%, respectively), Natural Sciences at Rhodes (37.4%) and Medical and Health Sciences (MHS) at Makerere (25.45%), UCT (27.5%) and Wits (23.4%). UG's 43.1% in BEMS is the highest proportion of enrolments in a field of study across all the fields of study, in all the universities.
- The following fields of study accounted for less than 5% of master's and doctoral enrolments in 2017: Engineering and Technology at UG (2.0%); BEMS at Ibadan (1.4%), Agricultural Sciences at Addis Ababa (1.01%) and MHS at Rhodes (4.8%).
- Most of the enrolments at six of the universities (2017) – Ibadan, Makerere, Stellenbosch, UCT, UP and Wits are in STEM (science, engineering, technology, and mathematics) fields, with Makerere having the highest (61.7%). With 25.5%, UG had the lowest proportion of enrolments in STEM fields,

followed by Lagos at 39.1%, Rhodes at 42.2% and Addis Ababa at 45.32%. Agricultural Science is a broad multidisciplinary field of study that includes study fields in Natural Sciences, BEMS and Social Sciences. For this analysis – in the absence of course specific data - Agricultural Sciences are counted as STEM fields. This is likely to skew the proportion of enrolments in STEM for universities with strong enrolments in Agricultural Sciences such as Ibadan and Makerere.

Table 2.1: Master’s and doctoral enrolments by field of study as a percentage of all master’s and doctoral enrolments, 2015 – 2017

| Institutions | Broad field | 2015 | 2016 | 2017 |
|---------------------|--|-------------|-------------|-------------|
| Ghana | Natural Sciences | 7.8% | 7.6% | 5.9% |
| | Engineering and Technology | 2.2% | 1.9% | 2.0% |
| | Medical and Health Sciences | 8.4% | 9.5% | 13.0% |
| | Agricultural Sciences | 5.9% | 5.8% | 4.6% |
| | Social Sciences | 19.8% | 22.8% | 24.7% |
| | Humanities | 8.9% | 8.4% | 6.8% |
| | Business, Economics and Management Studies | 46.9% | 44.0% | 43.1% |
| | Total | 100.0% | 100.0% | 100.0% |
| Ibadan | Natural Sciences | 17.1% | 17.2% | 16.9% |
| | Engineering and Technology | 8.5% | 9.0% | 9.5% |
| | Medical and Health Sciences | 15.3% | 15.1% | 14.4% |
| | Agricultural Sciences | 12.9% | 12.1% | 11.5% |
| | Social Sciences | 26.8% | 28.8% | 29.2% |
| | Humanities | 16.7% | 15.9% | 17.1% |
| | Business, Economics and Management Studies | 2.5% | 1.8% | 1.4% |
| | Total | 100.0% | 100.0% | 100.0% |
| Makerere | Natural Sciences | 10.2% | 8.2% | 12.8% |
| | Engineering and Technology | 6.8% | 13.0% | 10.3% |
| | Medical and Health Sciences | 11.3% | 25.2% | 25.4% |
| | Agricultural Sciences | 16.8% | 13.2% | 13.2% |
| | Social Sciences | 10.9% | 6.8% | 8.7% |
| | Humanities | 21.9% | 16.7% | 14.5% |
| | Business, Economics and Management Studies | 22.2% | 17.0% | 15.1% |
| | Total | 100.0% | 100.0% | 100.0% |
| Rhodes | Natural Sciences | 37.9% | 37.7% | 37.4% |
| | Engineering and Technology | 0.0% | 0.0% | 0.0% |
| | Medical and Health Sciences | 4.5% | 5.1% | 4.8% |
| | Agricultural Sciences | 0.0% | 0.0% | 0.0% |
| | Social Sciences | 26.8% | 25.6% | 26.4% |
| | Humanities | 18.0% | 18.3% | 18.1% |
| | Business, Economics and Management Studies | 12.8% | 13.4% | 13.3% |
| | Total | 100.0% | 100.0% | 100.0% |
| Stellenbosch | Natural sciences | 12.7% | 13.2% | 12.5% |
| | Engineering and Technology | 13.1% | 13.3% | 13.2% |
| | Medical and Health Sciences | 17.4% | 17.6% | 18.9% |
| | Agricultural Sciences | 8.5% | 8.3% | 8.7% |
| | Social Sciences | 12.0% | 11.8% | 12.4% |
| | Humanities | 10.7% | 9.7% | 9.7% |
| | Business, Economics and Management Studies | 25.5% | 26.0% | 24.6% |

| | | | | |
|-------------|--|--------|--------|--------|
| | Total | 100.0% | 100.0% | 100.0% |
| UCT | Natural Sciences | 15.5% | 14.8% | 14.7% |
| | Engineering and Technology | 18.6% | 17.4% | 17.9% |
| | Medical and Health Sciences | 27.0% | 27.2% | 27.5% |
| | Agricultural Sciences | 0.0% | 0.0% | 0.0% |
| | Social Sciences | 15.5% | 16.6% | 16.1% |
| | Humanities | 6.2% | 6.4% | 5.6% |
| | Business, Economics and Management Studies | 17.3% | 17.7% | 18.2% |
| | Total | 100.0% | 100.0% | 100.0% |
| UP | Natural Sciences | 15.5% | 17.0% | 16.7% |
| | Engineering and Technology | 16.7% | 16.6% | 17.2% |
| | Medical and Health Sciences | 12.1% | 13.3% | 13.7% |
| | Agricultural Sciences | 8.0% | 8.7% | 8.5% |
| | Social Sciences | 18.2% | 18.8% | 20.6% |
| | Humanities | 10.1% | 9.7% | 8.2% |
| | Business, Economics and Management Studies | 19.3% | 15.8% | 15.1% |
| | Total | 100.0% | 100.0% | 100.0% |
| WITS | Natural sciences | 13.3% | 14.0% | 14.7% |
| | Engineering and Technology | 17.4% | 17.8% | 18.0% |
| | Medical and Health Sciences | 24.6% | 24.5% | 23.4% |
| | Agricultural Sciences | 1.4% | 1.5% | 1.5% |
| | Social Sciences | 21.4% | 20.9% | 20.2% |
| | Humanities | 4.7% | 4.6% | 4.6% |
| | Business, Economics and Management Studies | 17.2% | 16.8% | 17.6% |
| | Total | 100.0% | 100.0% | 100.0% |
| Lagos | Natural Sciences | 18.1% | 20.1% | 16.9% |
| | Engineering and Technology | 15.8% | 15.5% | 16.2% |
| | Medical and Health Sciences | 8.0% | 7.1% | 6.0% |
| | Agricultural Sciences | 0.0% | 0.0% | 0.0% |
| | Social Sciences | 29.6% | 29.1% | 29.2% |
| | Humanities | 10.3% | 11.0% | 8.7% |
| | Business, Economics and Management Studies | 18.1% | 17.1% | 22.9% |
| | Total | 100.0% | 100.0% | 100.0% |
| Addis Ababa | Natural Sciences | 15.6% | 16.91% | 14.10% |
| | Engineering and Technology | 17.22% | 16.94% | 16.16% |
| | Medical and Health Sciences | 13.24% | 9.22% | 14.05% |
| | Agricultural Sciences | 1.12% | 0.95% | 1.01% |
| | Social Sciences | 21.62% | 20.98% | 20.03% |
| | Humanities | 14.18% | 13.94% | 12.09% |
| | Business, Economics and Management Studies | 12.07% | 16.27% | 17.09% |
| | Total | 100.0% | 100.0% | 100.0% |

2.1 Enrolments by gender

Figures 2.4 – 2.6 provide summaries of enrolments by gender across various postgraduate categories viz. postgraduate enrolments (including postgraduate enrolments below master's), master's and doctoral enrolments.

Figure 2.4: Postgraduate enrolments by gender, 2015 – 2017

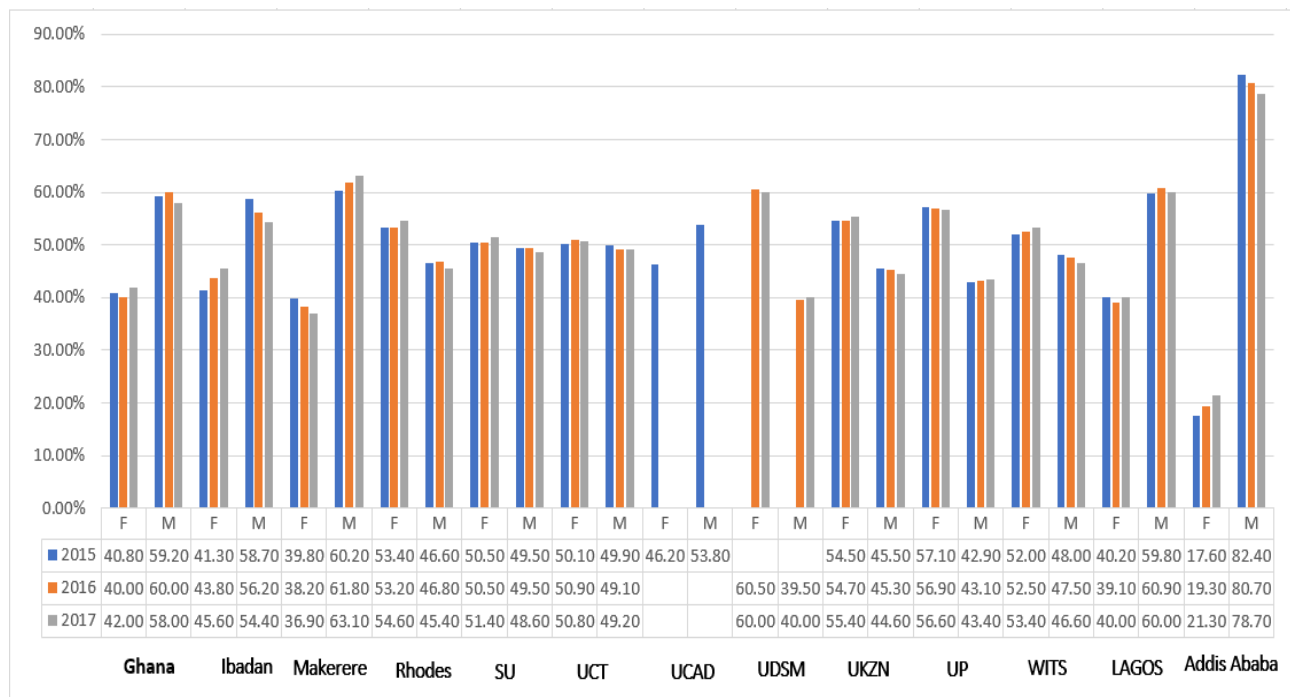


Figure 2.5: Master's enrolments by gender, 2015 – 2017

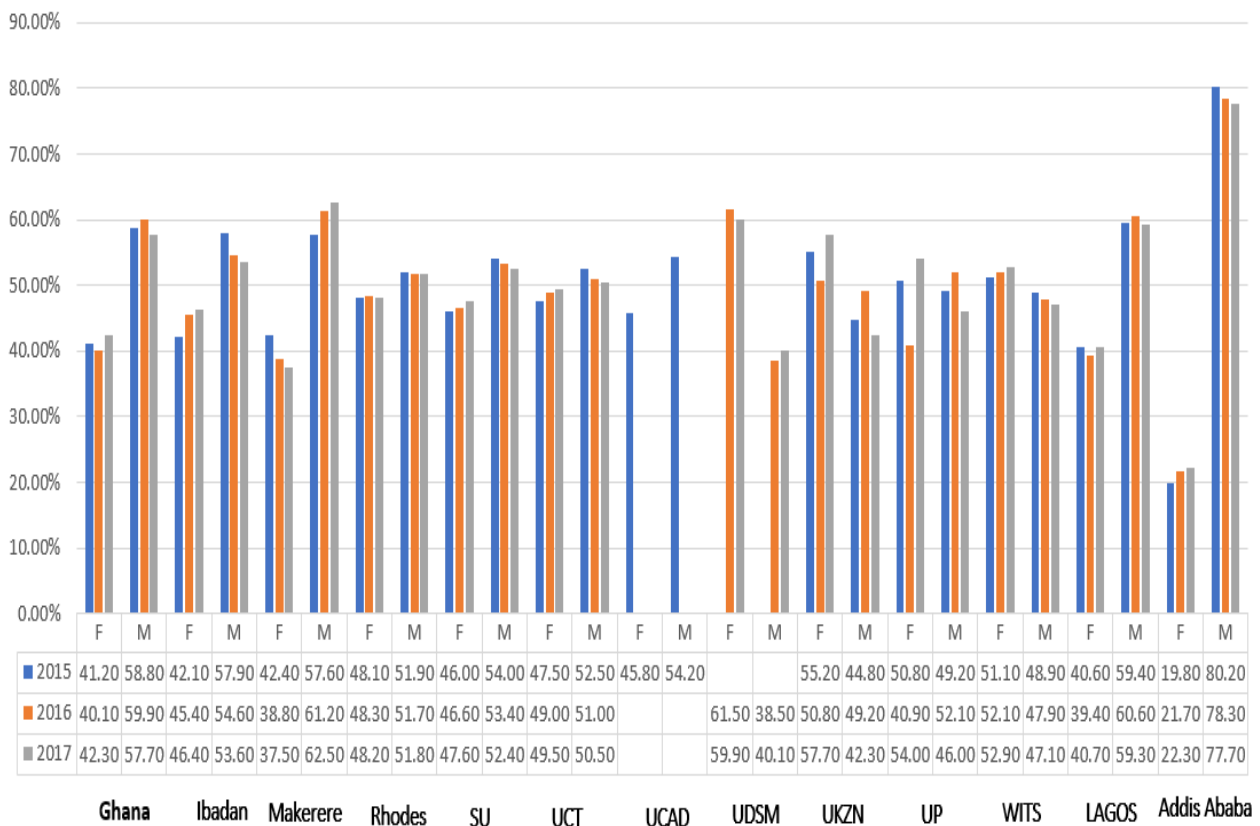
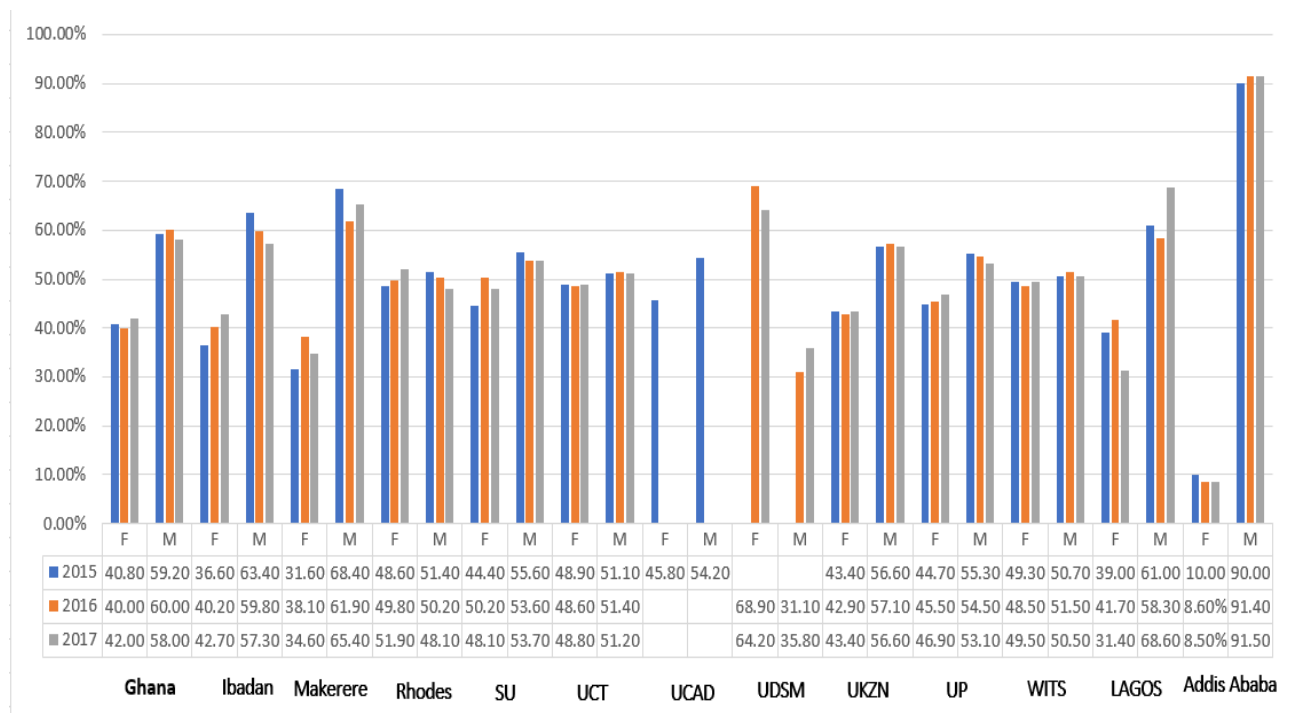


Figure 2.6: Doctoral enrolments by gender, 2015 – 2017



The common trend across figures 2.4 – 2.6 is that the enrolment of female students lags that of male students across most of the universities. Figure 2.4 (postgraduate enrolments by gender), however, represents an exception to this general trend whereby female students constitute a majority across all the South African universities and UDSM. For master’s enrolments, female students constitute a majority at three South African universities (UKZN, UP and Wits) and UDSM, while for doctoral enrolments only UDSM had higher enrolments of female students. Overall, UDSM is the only university where female enrolments are higher across the various levels of postgraduate studies.

The strong performance of female postgraduate enrolments by South African universities (Figure 4: postgraduate enrolments by gender), which is not reflected in master’s enrolments at three of the universities and doctoral enrolments across all the six universities, indicates that the majority of female students at these institutions are enrolled in postgraduate programmes below master’s, that is, honour’s and postgraduate diplomas. The strong presence of women in postgraduate programmes below the master’s level in South African universities indicates the presence of a strong pipeline of female students; meaning the challenge for these institutions pertains to the transition of female students from lower levels of postgraduate study to master’s and doctoral studies.

Another important observation across figures 2.4 – 2.6 is the growth, albeit marginally, in the proportion of female students across the various institutions where they are a minority. For instance, female students’ share of postgraduate enrolments at Ibadan increased from 41.3% – 45.6% from 2015 – 2017 and from 36.6% – 42.7% for doctoral enrolments over the same period. The reverse trend is, however, observed at Lagos and Makerere. For example, as a share of doctoral enrolments, female students at Lagos declined from 39% in 2015 to 31.4% in 2017. At Makerere, the percentage of female master’s students declined from 42.4% in 2015 to 37.5% in 2017.

Master's and doctoral enrolments by field of study and gender

Table 2.2 displays the distribution of master's and doctoral enrolments (combined) by gender and fields of study. Whilst the gender distribution could be described as heterogeneous, the general trend is that female students have a relatively stronger representation in Social Sciences, Humanities and BEMS. In the broader STEM fields, female students generally had a stronger representation in MHS compared to the other STEM fields. In 2017 female students constituted a majority in MHS at Ibadan (56.1%), Stellenbosch (58.8%), UCT (58.5%), UP (64.5%), Wits (64.2%) and Lagos (55.6%). The field where female students are generally least represented is Engineering and Technology. In 2017 the share of female master's and doctoral students in Engineering and Technology ranged from 16.97% (Addis Ababa) to 33.3% (Wits). The decline in the proportion of female enrolments in Engineering and Technology at Makerere is noticeable: from 32.2% in 2015 to 18.7% in 2017.

Overall, even though the distribution of students across the various fields of study is heterogeneous, there are elements of gender segregation whereby female students are either dominant or have relatively higher representation especially in BEMS and in the so-called female fields of study, inter alia, Social Sciences and Humanities.

Table 2.2: Master's and doctoral enrolments by field of study and gender, 2015- 2017

| Institutions | Broad field | 2015 | | Total | 2016 | | Total | 2017 | | Total |
|--------------|--|--------|-------|--------|--------|-------|--------|--------|-------|--------|
| | | Female | Male | | Female | Male | | Female | Male | |
| Ghana | Natural sciences | 21.1% | 78.9% | 100.0% | 24.4% | 75.6% | 100.0% | 26.9% | 73.1% | 100.0% |
| | Engineering and Technology | 26.7% | 73.3% | 100.0% | 28.4% | 71.6% | 100.0% | 23.3% | 76.7% | 100.0% |
| | Medical and Health sciences | 46.6% | 53.4% | 100.0% | 43.0% | 57.0% | 100.0% | 46.7% | 53.3% | 100.0% |
| | Agricultural sciences | 29.0% | 71.0% | 100.0% | 28.1% | 71.9% | 100.0% | 27.8% | 72.2% | 100.0% |
| | Social sciences | 39.4% | 60.6% | 100.0% | 40.5% | 59.5% | 100.0% | 45.2% | 54.8% | 100.0% |
| | Humanities | 41.5% | 58.5% | 100.0% | 41.6% | 58.4% | 100.0% | 41.3% | 58.7% | 100.0% |
| | Business, Economics and Management Studies | 45.7% | 54.3% | 100.0% | 43.6% | 56.4% | 100.0% | 43.4% | 56.6% | 100.0% |
| | Total | 40.8% | 59.2% | 100.0% | 40.0% | 60.0% | 100.0% | 42.0% | 58.0% | 100.0% |
| Ibadan | Natural sciences | 37.1% | 62.9% | 100.0% | 38.7% | 61.3% | 100.0% | 40.2% | 59.8% | 100.0% |
| | Engineering and Technology | 19.4% | 80.6% | 100.0% | 20.4% | 79.6% | 100.0% | 21.3% | 78.7% | 100.0% |
| | Medical and Health sciences | 55.1% | 44.9% | 100.0% | 52.8% | 47.2% | 100.0% | 56.1% | 43.9% | 100.0% |
| | Agricultural sciences | 41.5% | 58.5% | 100.0% | 44.6% | 55.4% | 100.0% | 47.6% | 52.4% | 100.0% |
| | Social sciences | 44.3% | 55.7% | 100.0% | 49.5% | 50.5% | 100.0% | 52.7% | 47.3% | 100.0% |
| | Humanities | 39.1% | 60.9% | 100.0% | 44.2% | 55.8% | 100.0% | 48.2% | 51.8% | 100.0% |
| | Business, Economics and Management Studies | 31.9% | 68.1% | 100.0% | 24.6% | 75.4% | 100.0% | 28.2% | 71.8% | 100.0% |
| | Total | 41.1% | 58.9% | 100.0% | 43.7% | 56.3% | 100.0% | 46.4% | 53.6% | 100.0% |
| Makerere | Natural sciences | 38.1% | 61.9% | 100.0% | 42.6% | 57.4% | 100.0% | 28.4% | 71.6% | 100.0% |
| | Engineering and Technology | 32.2% | 67.8% | 100.0% | 23.3% | 76.7% | 100.0% | 18.7% | 81.3% | 100.0% |
| | Medical and Health sciences | 41.4% | 58.6% | 100.0% | 43.2% | 56.8% | 100.0% | 42.6% | 57.4% | 100.0% |
| | Agricultural sciences | 36.0% | 64.0% | 100.0% | 40.0% | 60.0% | 100.0% | 35.0% | 65.0% | 100.0% |
| | Social sciences | 40.0% | 60.0% | 100.0% | 39.0% | 61.0% | 100.0% | 42.1% | 57.9% | 100.0% |
| | Humanities | 54.1% | 45.9% | 100.0% | 42.1% | 57.9% | 100.0% | 51.1% | 48.9% | 100.0% |
| | Business, Economics and Management Studies | 32.4% | 67.6% | 100.0% | 37.4% | 62.6% | 100.0% | 33.0% | 67.0% | 100.0% |
| | Total | 40.2% | 59.8% | 100.0% | 38.7% | 61.3% | 100.0% | 37.1% | 62.9% | 100.0% |
| Rhodes | Natural sciences | 55.3% | 44.7% | 100.0% | 55.8% | 44.2% | 100.0% | 59.0% | 41.0% | 100.0% |
| | Engineering and Technology | | | | | | | | | |
| | Medical and Health sciences | 47.0% | 53.0% | 100.0% | 41.8% | 58.2% | 100.0% | 36.1% | 63.9% | 100.0% |
| | Agricultural sciences | | | | | | | | | |
| | Social sciences | 39.7% | 60.3% | 100.0% | 37.7% | 62.3% | 100.0% | 35.4% | 64.6% | 100.0% |
| | Humanities | 47.2% | 52.8% | 100.0% | 46.5% | 53.5% | 100.0% | 43.2% | 56.8% | 100.0% |
| | Business, Economics and Management Studies | 56.3% | 43.7% | 100.0% | 57.2% | 42.8% | 100.0% | 54.5% | 45.5% | 100.0% |
| | Total | 49.4% | 50.6% | 100.0% | 48.9% | 51.1% | 100.0% | 48.2% | 51.8% | 100.0% |
| Stellenbosch | Natural sciences | 44.4% | 55.6% | 100.0% | 44.3% | 55.7% | 100.0% | 45.0% | 55.0% | 100.0% |
| | Engineering and Technology | 16.3% | 83.7% | 100.0% | 20.3% | 79.7% | 100.0% | 23.3% | 76.7% | 100.0% |
| | Medical and Health sciences | 57.5% | 42.5% | 100.0% | 58.7% | 41.3% | 100.0% | 58.8% | 41.2% | 100.0% |
| | Agricultural sciences | 48.8% | 51.2% | 100.0% | 48.5% | 51.5% | 100.0% | 49.0% | 51.0% | 100.0% |
| | Social sciences | 65.3% | 34.7% | 100.0% | 64.6% | 35.4% | 100.0% | 62.3% | 37.7% | 100.0% |
| | Humanities | 47.6% | 52.4% | 100.0% | 48.0% | 52.0% | 100.0% | 48.4% | 51.6% | 100.0% |

| | | | | | | | | | | |
|-------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Business, Economics and Management Studies | 42.0% | 58.0% | 100.0% | 43.5% | 56.5% | 100.0% | 43.8% | 56.3% | 100.0% |
| | Total | 45.6% | 54.4% | 100.0% | 46.5% | 53.5% | 100.0% | 47.2% | 52.8% | 100.0% |
| UCT | Natural sciences | 43.4% | 56.6% | 100.0% | 43.8% | 56.2% | 100.0% | 44.7% | 55.3% | 100.0% |
| | Engineering and Technology | 30.0% | 70.0% | 100.0% | 29.0% | 71.0% | 100.0% | 30.8% | 69.2% | 100.0% |
| | Medical and Health sciences | 57.6% | 42.4% | 100.0% | 58.8% | 41.2% | 100.0% | 58.5% | 41.5% | 100.0% |
| | Agricultural sciences | | | | | | | | | |
| | Social sciences | 61.1% | 38.9% | 100.0% | 62.8% | 37.2% | 100.0% | 62.9% | 37.1% | 100.0% |
| | Humanities | 60.7% | 39.3% | 100.0% | 62.3% | 37.7% | 100.0% | 60.7% | 39.3% | 100.0% |
| | Business, Economics and Management Studies | 39.4% | 60.6% | 100.0% | 39.7% | 60.3% | 100.0% | 41.9% | 58.1% | 100.0% |
| | Total | 47.9% | 52.1% | 100.0% | 48.9% | 51.1% | 100.0% | 49.3% | 50.7% | 100.0% |
| UP | Natural sciences | 45.3% | 54.7% | 100.0% | 47.9% | 52.1% | 100.0% | 50.8% | 49.2% | 100.0% |
| | Engineering and Technology | 28.9% | 71.1% | 100.0% | 30.4% | 69.6% | 100.0% | 30.4% | 69.6% | 100.0% |
| | Medical and Health sciences | 62.9% | 37.1% | 100.0% | 62.7% | 37.3% | 100.0% | 64.5% | 35.5% | 100.0% |
| | Agricultural sciences | 58.2% | 41.8% | 100.0% | 58.8% | 41.2% | 100.0% | 57.5% | 42.5% | 100.0% |
| | Social sciences | 63.2% | 36.8% | 100.0% | 63.7% | 36.3% | 100.0% | 64.5% | 35.5% | 100.0% |
| | Humanities | 44.2% | 55.8% | 100.0% | 44.2% | 55.8% | 100.0% | 46.9% | 53.1% | 100.0% |
| | Business, Economics and Management Studies | 47.4% | 52.6% | 100.0% | 50.1% | 49.9% | 100.0% | 49.3% | 50.7% | 100.0% |
| | Total | 49.3% | 50.7% | 100.0% | 50.9% | 49.1% | 100.0% | 52.0% | 48.0% | 100.0% |
| WITS | Natural sciences | 47.6% | 52.4% | 100.0% | 46.2% | 53.8% | 100.0% | 45.7% | 54.3% | 100.0% |
| | Engineering and Technology | 27.8% | 72.2% | 100.0% | 29.4% | 70.6% | 100.0% | 33.3% | 66.7% | 100.0% |
| | Medical and Health sciences | 64.1% | 35.9% | 100.0% | 64.7% | 35.3% | 100.0% | 64.2% | 35.8% | 100.0% |
| | Agricultural sciences | 56.8% | 43.2% | 100.0% | 55.0% | 45.0% | 100.0% | 60.6% | 39.4% | 100.0% |
| | Social sciences | 59.8% | 40.2% | 100.0% | 61.8% | 38.2% | 100.0% | 64.2% | 35.8% | 100.0% |
| | Humanities | 59.9% | 40.1% | 100.0% | 59.8% | 40.2% | 100.0% | 60.2% | 39.8% | 100.0% |
| | Business, Economics and Management Studies | 42.8% | 57.2% | 100.0% | 43.5% | 56.5% | 100.0% | 44.2% | 55.8% | 100.0% |
| | Total | 50.7% | 49.3% | 100.0% | 51.3% | 48.7% | 100.0% | 52.2% | 47.8% | 100.0% |
| Lagos | Natural sciences | 38.4% | 61.6% | 100.0% | 37.7% | 62.3% | 100.0% | 37.8% | 62.2% | 100.0% |
| | Engineering and Technology | 20.4% | 79.6% | 100.0% | 17.7% | 82.3% | 100.0% | 19.5% | 80.5% | 100.0% |
| | Medical and Health sciences | 60.3% | 39.7% | 100.0% | 51.3% | 48.7% | 100.0% | 55.6% | 44.4% | 100.0% |
| | Agricultural sciences | | | | | | | | | |
| | Social sciences | 46.6% | 53.4% | 100.0% | 45.5% | 54.5% | 100.0% | 48.8% | 51.2% | 100.0% |
| | Humanities | 53.6% | 46.4% | 100.0% | 50.1% | 49.9% | 100.0% | 54.5% | 45.5% | 100.0% |
| | Business, Economics and Management Studies | 34.2% | 65.8% | 100.0% | 39.3% | 60.7% | 100.0% | 36.7% | 63.3% | 100.0% |
| | Total | 40.5% | 59.5% | 100.0% | 39.5% | 60.5% | 100.0% | 40.3% | 59.7% | 100.0% |
| Addis Ababa | Natural sciences | 15.52% | 84.48% | 100.0% | 15.74% | 84.26% | 100.0% | 14.83% | 85.17% | 100.0% |
| | Engineering and Technology | 16.65% | 83.35% | 100.0% | 15.47% | 84.53% | 100.0% | 16.97% | 83.03% | 100.0% |
| | Medical and Health sciences | 26.55% | 73.45% | 100.0% | 25.23% | 74.77% | 100.0% | 22.94% | 77.06% | 100.0% |
| | Agricultural sciences | 21.74% | 78.26% | 100.0% | 16.55% | 83.45% | 100.0% | 13.04% | 86.96% | 100.0% |
| | Social sciences | 16.78% | 83.22% | 100.0% | 22.14% | 77.86% | 100.0% | 20.73% | 79.27% | 100.0% |
| | Humanities | 11.42% | 88.58% | 100.0% | 17.91% | 82.09% | 100.0% | 20.27% | 79.73% | 100.0% |
| | Business, Economics and Management Studies | 25.20% | 74.80% | 100.0% | 24.75% | 75.25% | 100.0% | 27.59% | 72.41% | 100.0% |
| | Total | 18% | 82% | 100.0% | 20% | 80% | 100.0% | 21% | 79% | 100.0% |

3.0 Graduates

Figures 3.1 – 3.4 provide a summary of the universities' share of postgraduate graduates. Figure 3.1 shows that the proportion of postgraduate graduates ranged from 14.7% (UDSM) to 56.9% (Ibadan) in 2017. Five of the universities (UG, SU, UKZN, Wits and Addis Ababa) increased their share of postgraduate graduates between 2015 and 2017, whilst the share declined at five universities (Ibadan, Makerere, Rhodes, UCT and UP). An interesting observation is that the share of postgraduate graduates is generally higher compared to the share of postgraduate enrolments (see Figure 2.1). This could be explained by reasons such as a better internal efficiency for postgraduate education and higher persistence rates by postgraduate students.

Figure 3.1: Postgraduates as a percentage of all graduates, 2015 – 2017

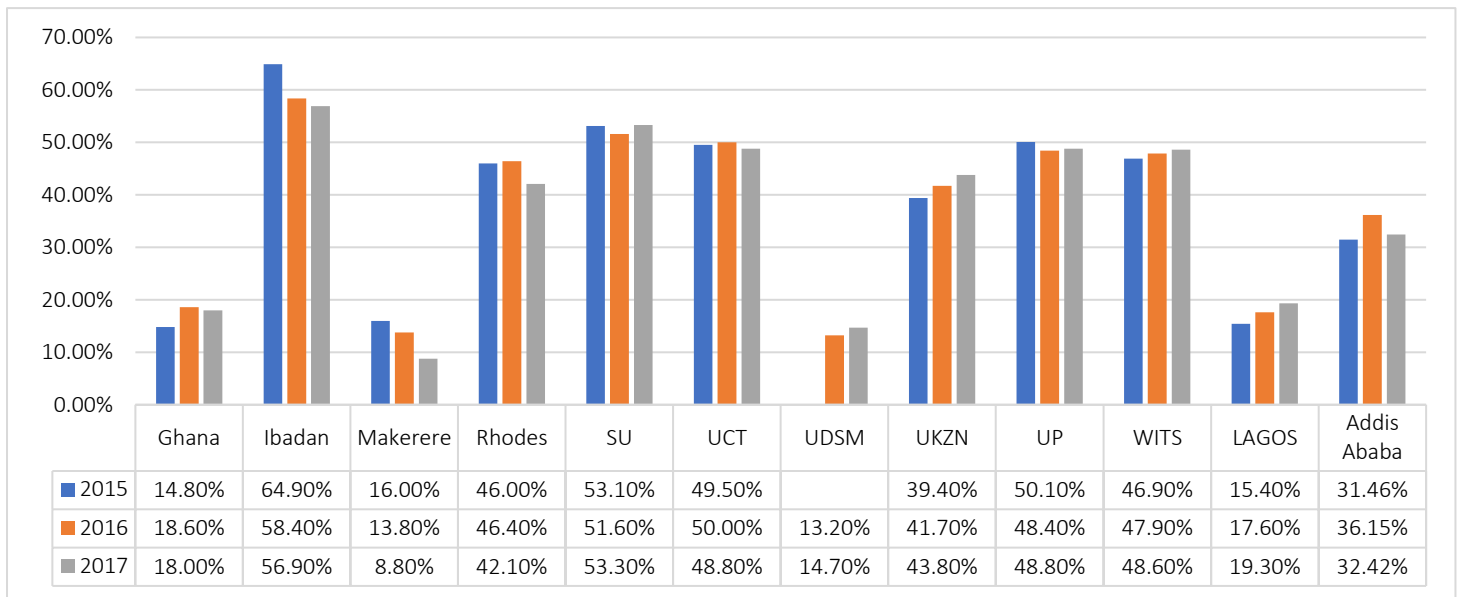
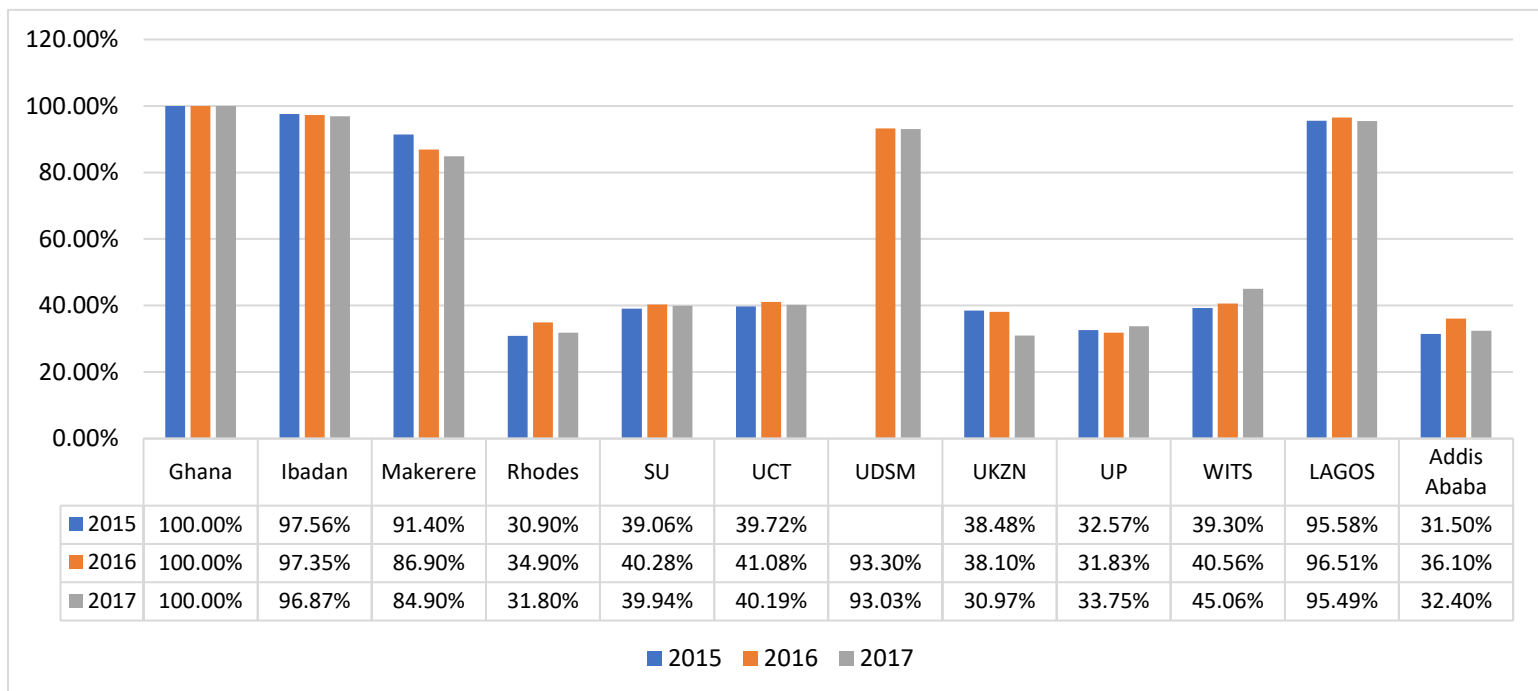


Figure 3.2, which only shows master’s and doctoral graduates (as a percentage of all graduates), that is, excluding postgraduate graduates below master’s, shows a significantly reduced proportion of postgraduate graduates (master’s and doctoral graduates) for South African universities compared to Figure 3.1. This reinforces the observation in Section 2 regarding the significant number of postgraduate enrolments below master’s in South African universities. This observation is reinforced further by Figure 3.3, which shows that master’s and doctoral graduates account for less than 50% of postgraduate graduates in South African universities. In the other universities, most postgraduate graduates are master’s and doctoral graduates.

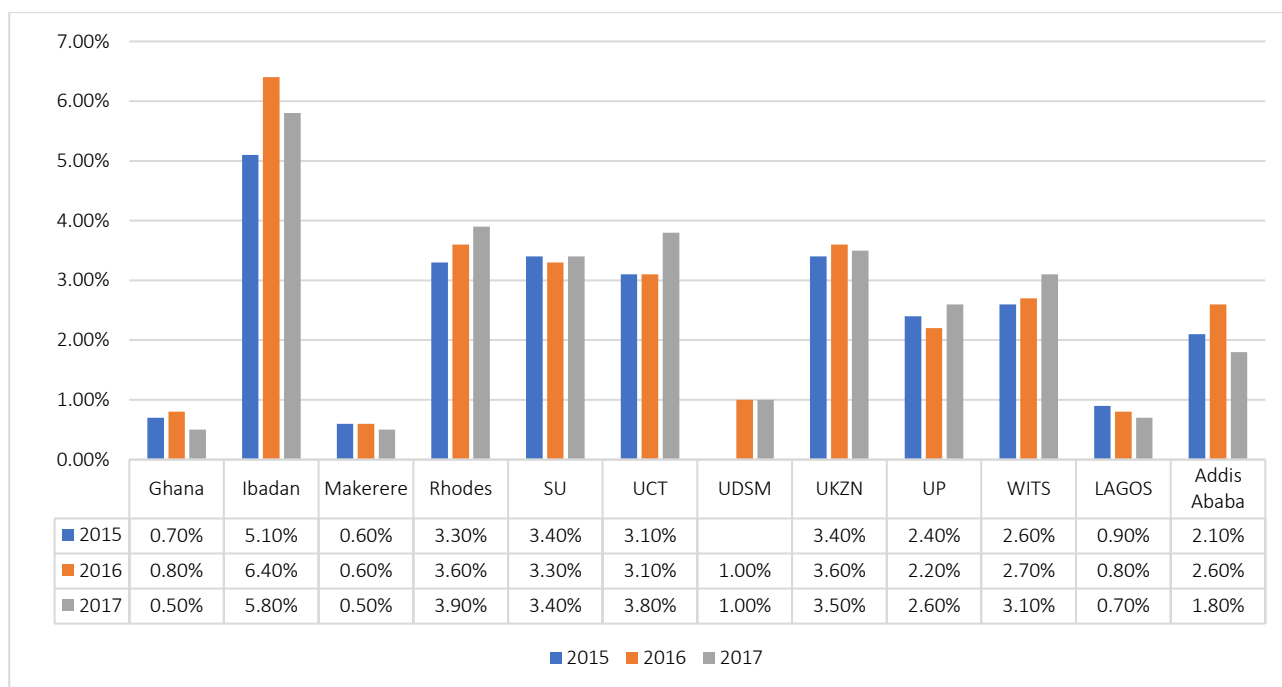
Figure 3.2: Master’s and doctoral graduates as a percentage of all postgraduates, 2015 - 2017



Doctoral graduates

Doctoral graduates, as expected, constitute the smallest share of postgraduate graduates across the universities. As shown in Figure 3.4, the share of doctoral graduates compared to all graduates ranged from 0.5% (UG and Makerere) to 5.8% (Rhodes) in 2017. The proportion of doctoral graduates is stable across the universities.

Figure 3.3: Doctoral graduates as a percentage of all graduates, 2015 – 2017



3.1 Graduates by gender

Figures 3.5 - 3.7 provide a summary of the share of graduates by gender across various postgraduate levels, namely all postgraduate graduates, master's graduates, and doctoral graduates.

Figure 3.4: Postgraduate graduates by gender, 2015 – 2017

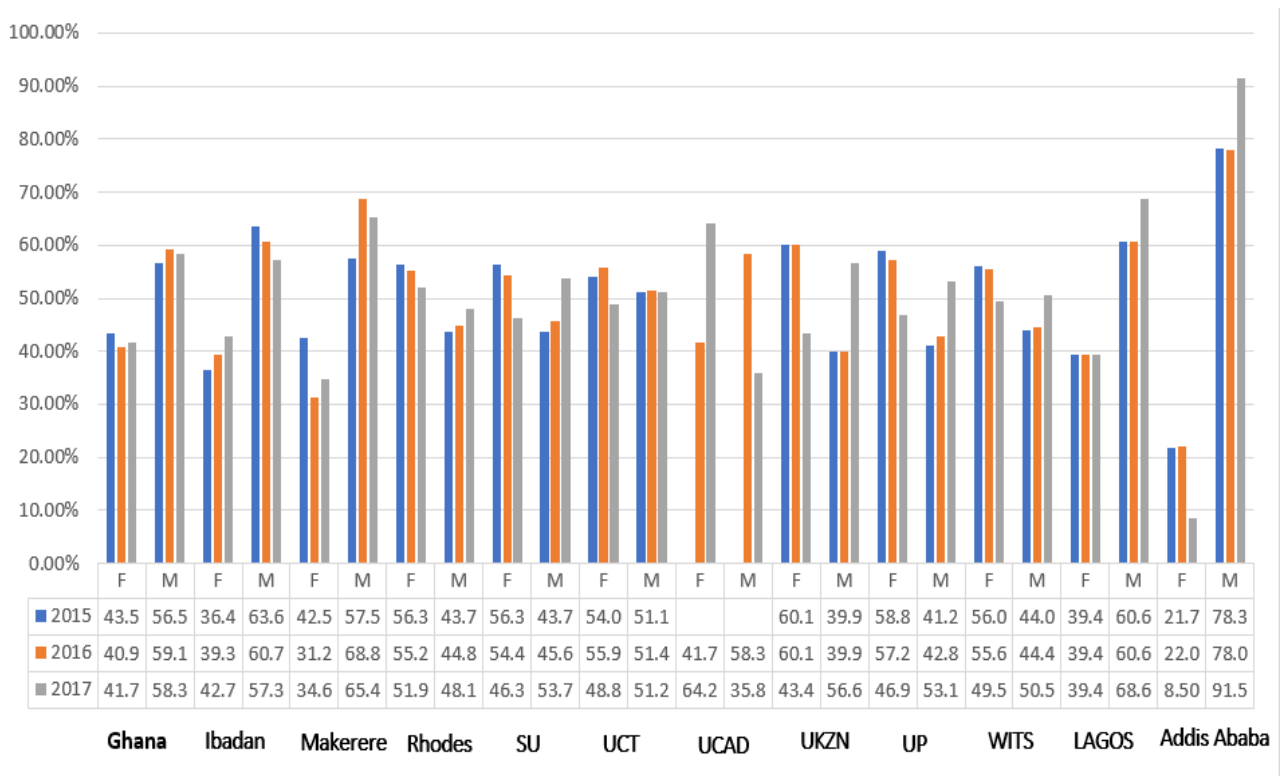


Figure 3.5: Master's graduates by gender, 2015 – 2017

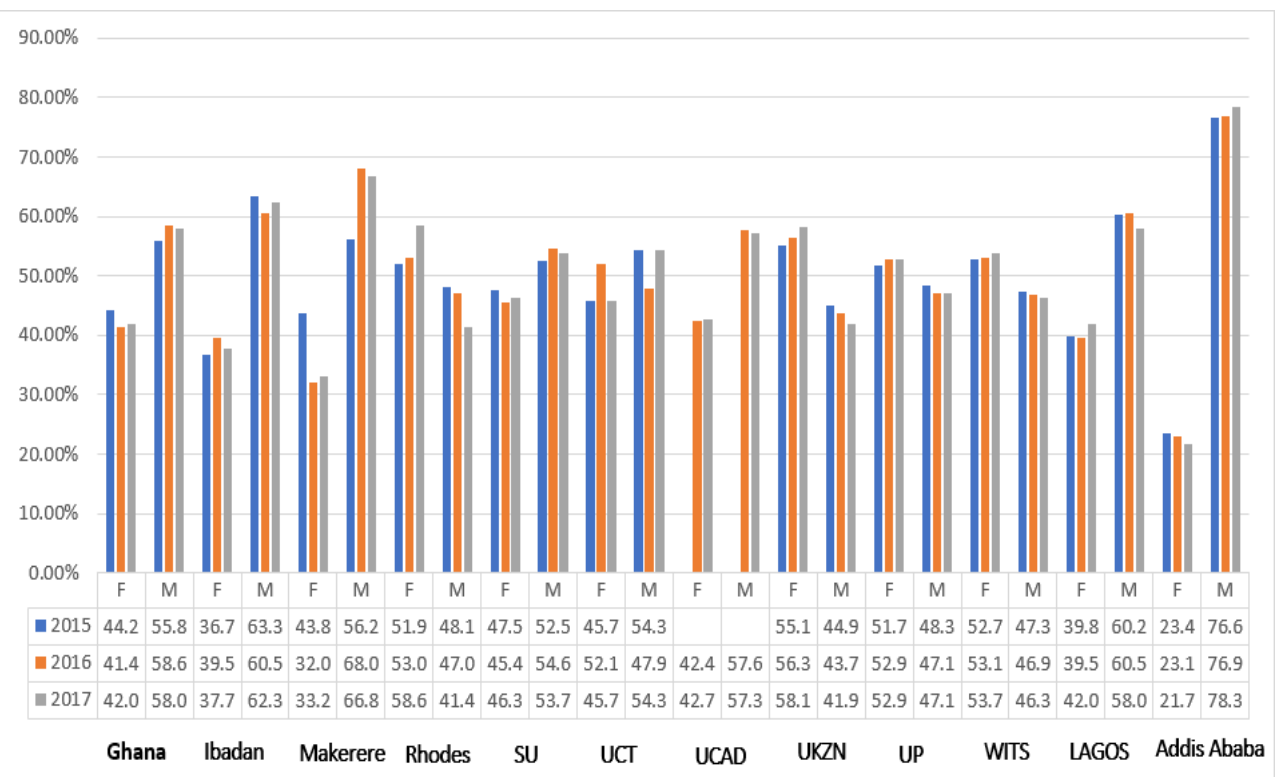
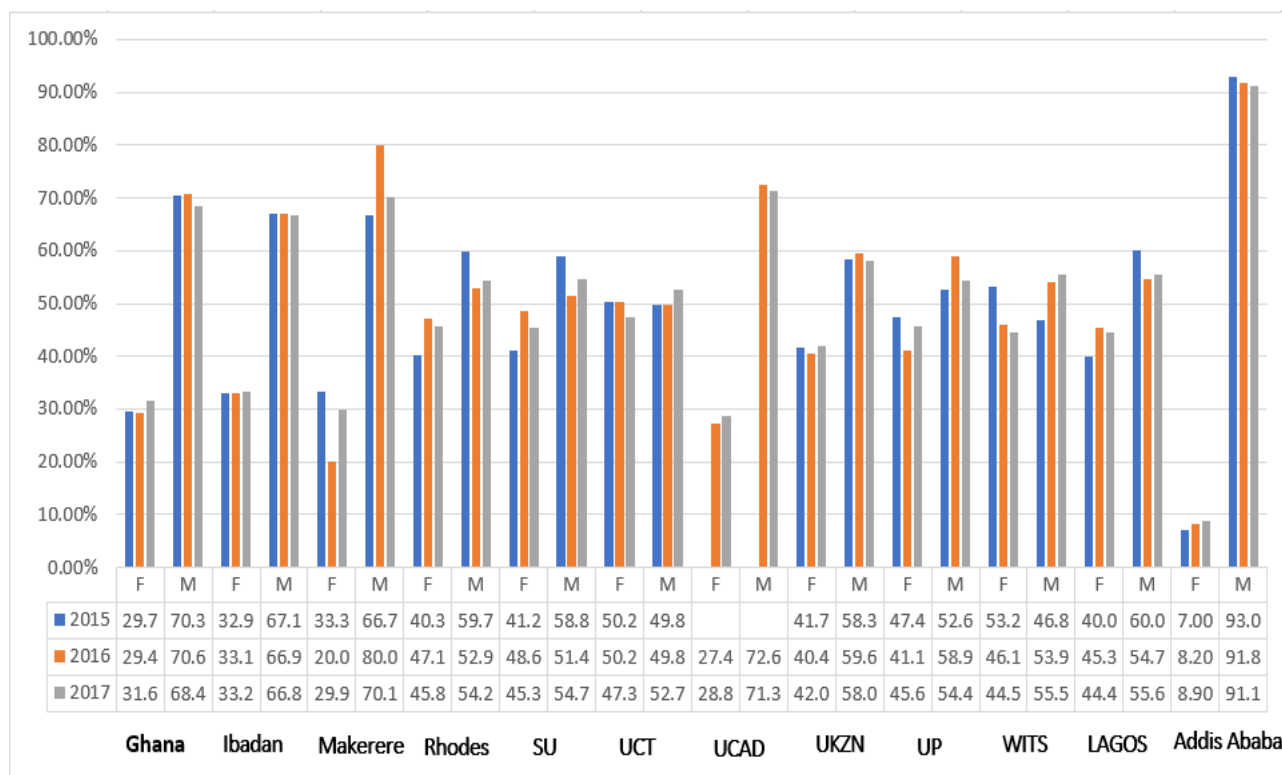


Figure 3.6: Doctoral graduates by gender, 2015 – 2017



The following are the main observations from figures 3.5 – 3.7:

- (a) The share of female postgraduate graduates (Figure 3.5) is significantly higher than that of male graduates at South African universities. The opposite is the case at all the other universities.
- (b) The trend in (a) above is repeated for master’s graduates (figures 3.6), except for two South African universities (SU and UCT) which recorded a lower share of female graduates.
- (c) Female graduates are underrepresented amongst doctoral graduates (Figure 3.7) across all the universities. This underrepresentation is more pronounced at UG, Ibadan, Makerere, UDSM and Addis Ababa, where the share of female graduates was less than 35% in 2017.

4.0 Completion times for doctoral studies

The time taken by postgraduate students to complete their studies is an important measure of the efficiency of postgraduate education. Completion times have implications for training costs, ability to recruit more students (expand access), and the rate at which universities supply scarce skills to academia and the economy. Thus, increasing postgraduate throughput rates and minimising drop-out rates are important priorities for universities around the world.

Figure 4.1 shows that all the universities, except UCT and UKZN, experienced an increase in the percentage of doctoral students who completed their studies within four years between 2015 and 2017. UP experienced the strongest improvement over the three-year period (20.8 percentage points) whilst UKZN recorded the steepest decline (10.3 percentage points). Figure 4.2 shows the percentage of doctoral students taking longer than four years (full time) or six years (part-time) to complete their doctoral studies. Rhodes (12.5%), Ibadan

(19%) and Makerere (19.5%) had the lowest proportion of students in this category (2017). UDSM, which had the highest proportion of doctoral students taking longer than four years (full time) or six years (part-time) to complete their doctoral studies (8.0% in 2017), has a significant number of part-time doctoral students. All the universities, except Ibadan and UKZN, reduced the proportion of doctoral graduates completing their studies after more than four years (full-time) or six years (part-time). UKZN's proportion grew from 33.4% in 2015 to 44.8% in 2017.

Figure 4.1: PhD graduates who completed within 4 years

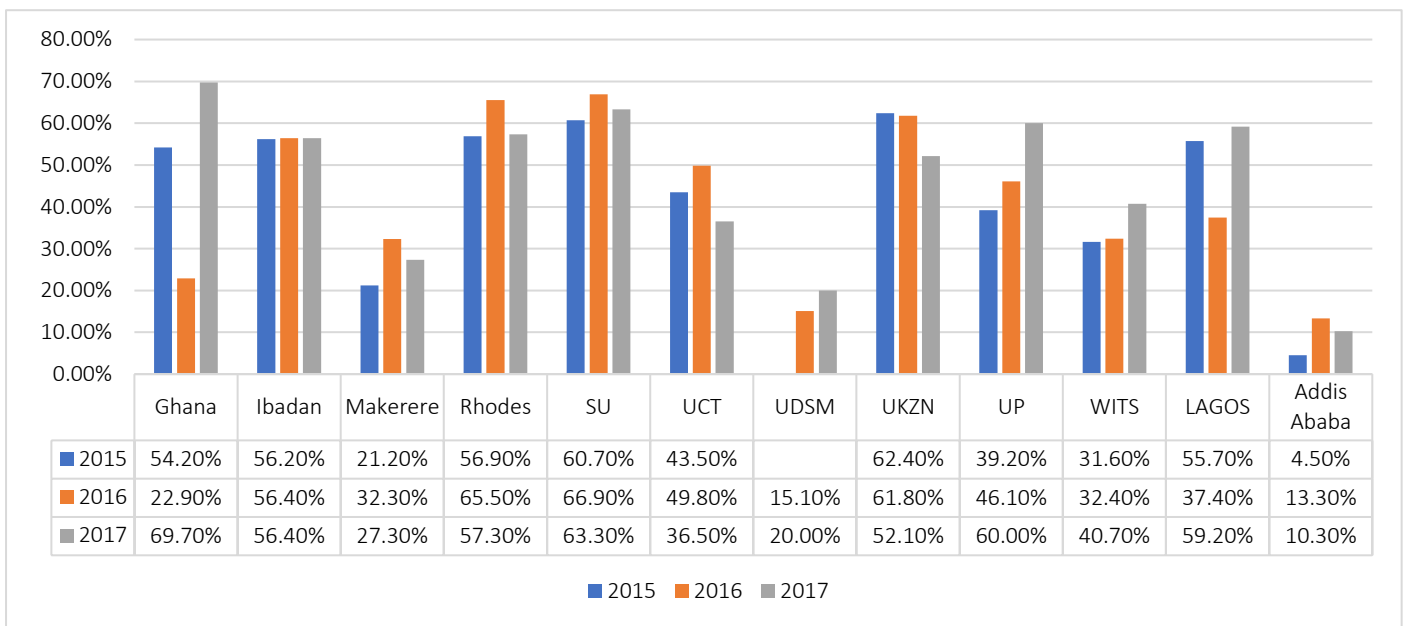
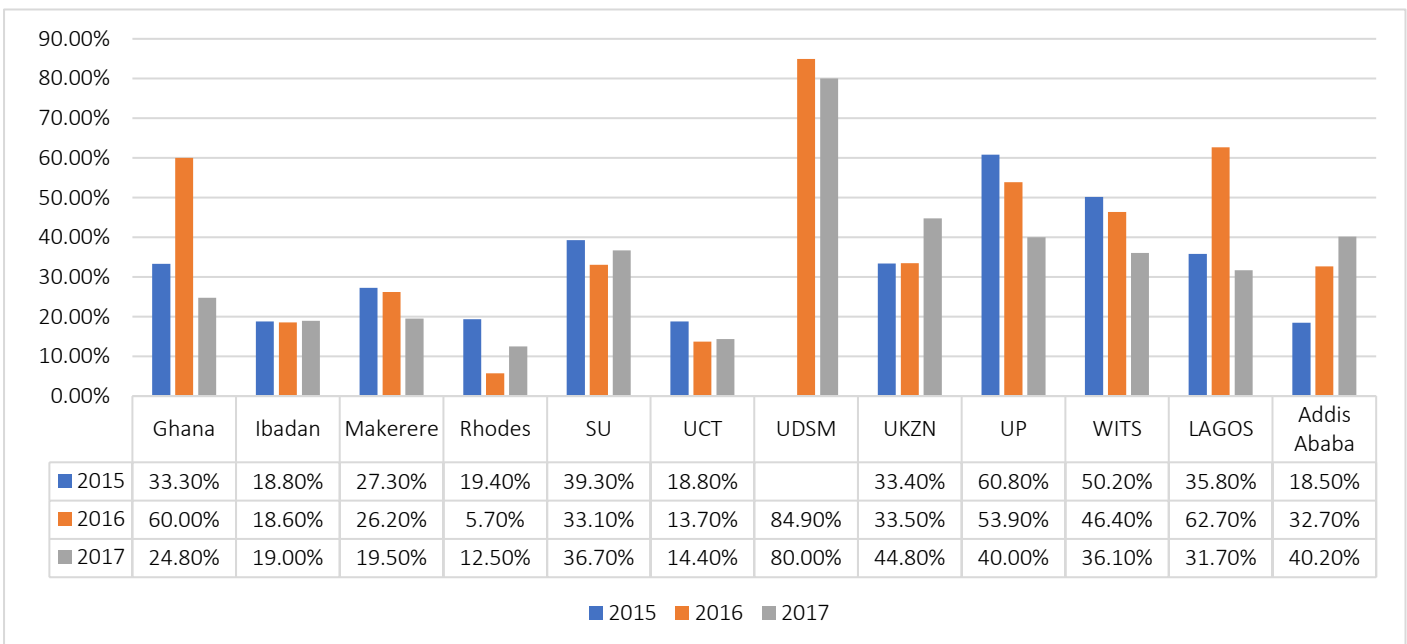


Figure 4.2: PhD graduates taking longer than 4 years (full-time) or 6 years (part-time)

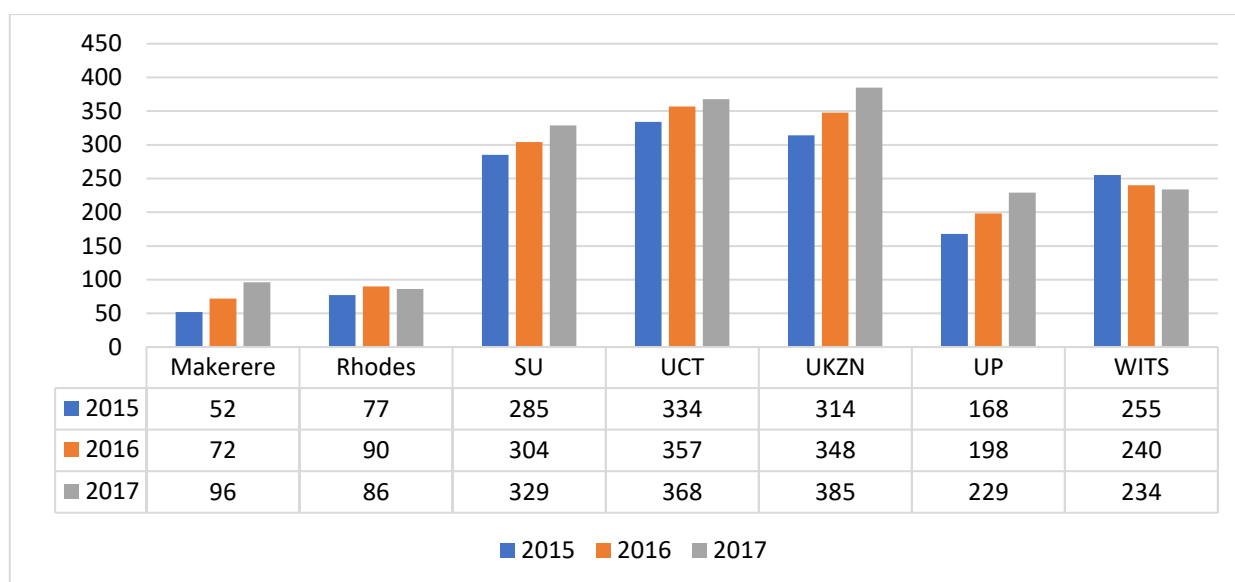


5.0 Postdoctoral research fellows

There are diverse perspectives about postdoctoral training, amongst them, the claim that it is a form of casualisation of academic labour; that it is an important stage of research careers (as a form of academic apprenticeship) and the claim that these positions may be used as an employment holding pattern. For this project, postdoctoral research fellowships are regarded as key elements of a university’s research capacity and, perhaps more importantly, are regarded as academic apprenticeships whereby ‘younger’ scholars who have recently completed their doctoral studies are supported to become fully-fledged researchers and scholars.

From the data provided, and captured in Figure 5.1, only South African universities and Makerere have postdoctoral research fellows. All the universities, except Wits, increased their number of postdoctoral research fellows across the three years. The data suggests that postdoctoral research fellowships should be an area of priority for ARUA.

Figure 5.1: Postdoctoral research fellows, 2015 – 2017



6.0 Staffing

The following graphs (figures 6.1 and 6.2) provide a summary of the proportion of permanent academic staff and women academic staff at ten of the universities. As shown in the graphs, most academics at these universities are permanent staff members. With 62.3% in 2017, UCT had the lowest proportion of permanent academic staff, indicating that the university employs a fairly large number of part-time/contract academic staff (Figure 6.1).

Women academic staff (Figure 6.2) are under-represented at the universities. Only at two universities - Rhodes and UP – do women academic staff account for more than 50% of permanent academic staff. At five of the universities - SU, UCT, UP, Wits and Addis Ababa - the proportion of women academics grew, albeit marginally, over the three-year period 2015 - 2017. The other universities recorded a decline, with Ibadan recording the highest decline (6 percentage points). It is clear from the data that advancing gender equality should be an important priority for ARUA universities, even if some of the universities have made significant advances.

Figure 6.1: Permanent academic staff as a percentage of all academic staff

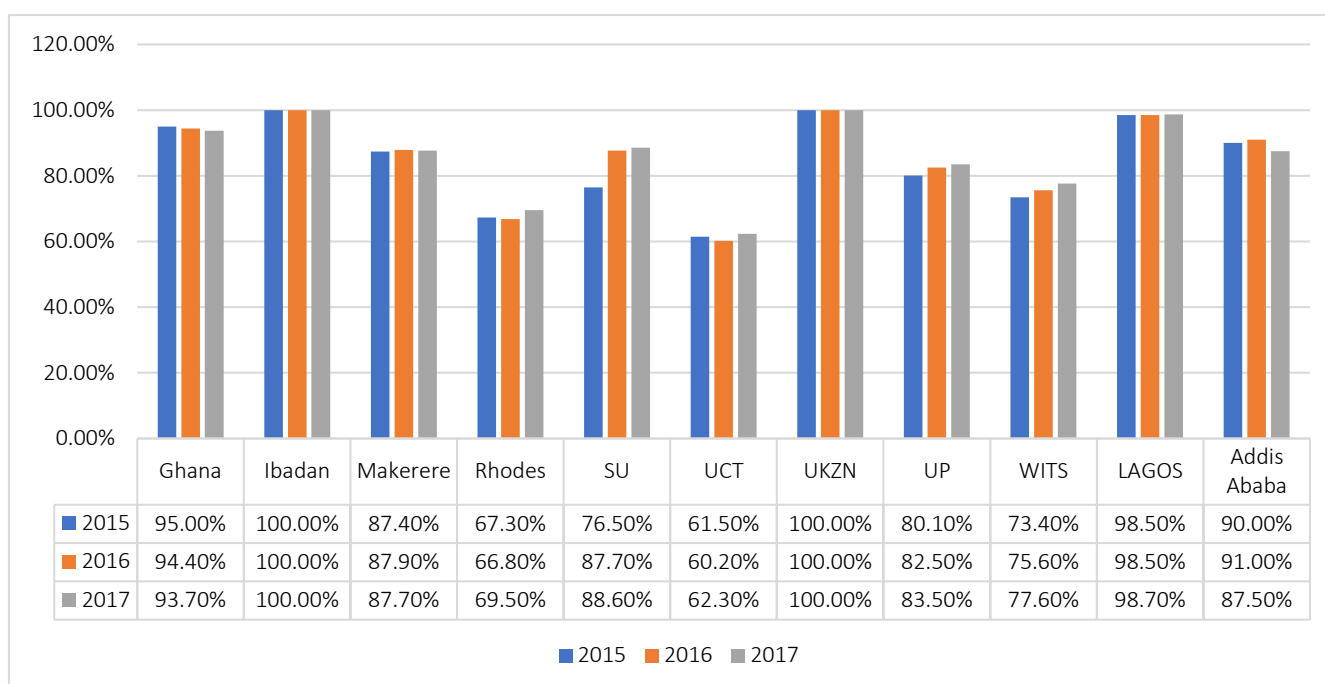
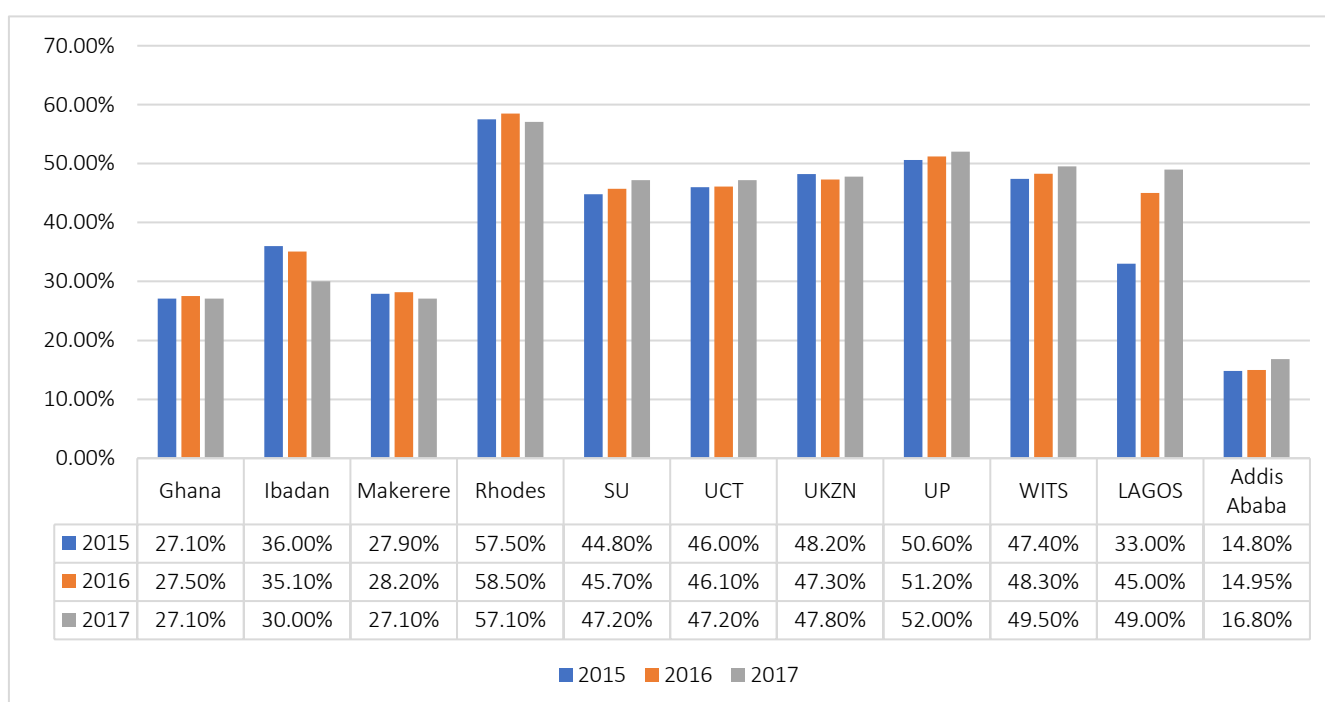


Figure 6.2: Proportion of permanent women academic staff

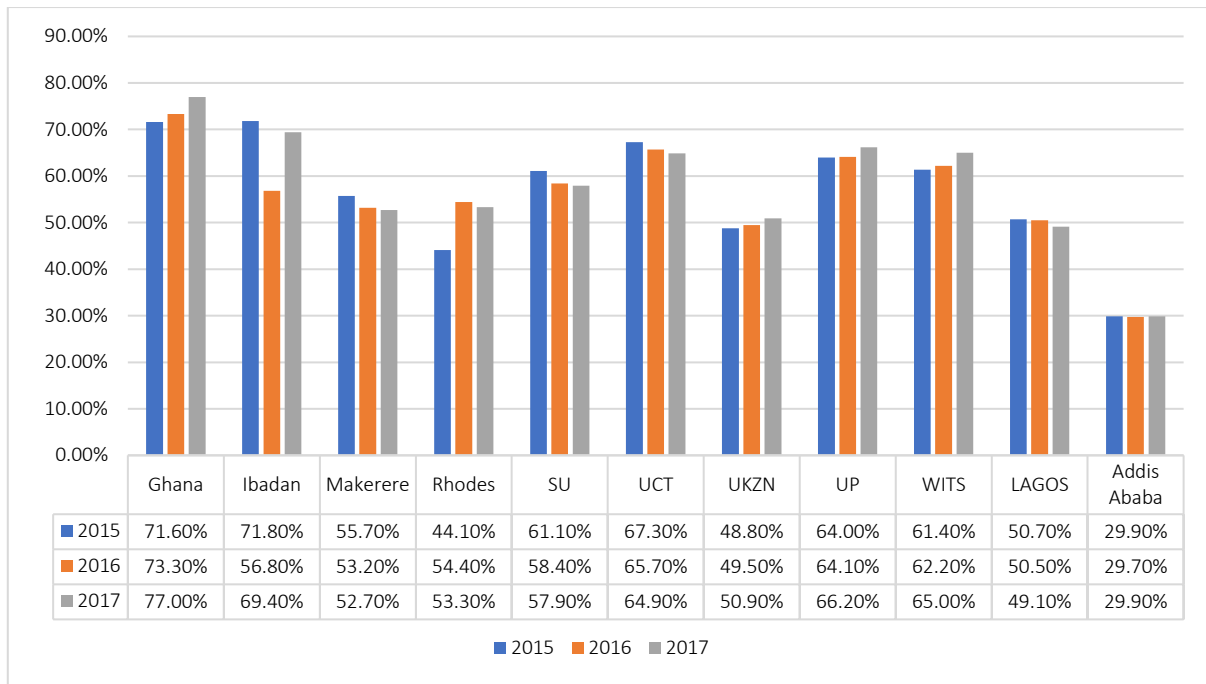


6.1 Permanent academic staff with PhD degrees

Doctoral qualifications are critical for a university’s academic core/heartland and its primary function as a knowledge institution. Accordingly, it is expected that most university academic staff should have a doctorate. Figure 6.3 below shows the percentage of academic staff with doctorates for the ten universities

that submitted these data. At 77%, UG has the highest percentage of academic staff with doctorates and registered the strongest growth (5.4 percentage points) of academics with this qualification over the three-year period. All the universities experienced an increase in the proportion of academics with doctorates except Ibadan, Makerere, SU, UCT. Ibadan recorded a steep decline of 15 percentage points between 2015 and 2016 (from 71.8% to 56.8%). Addis Ababa has the lowest percentage of academics with doctorates (29.9% in 2017).

Figure 6.3: Percentage of permanent academic staff with doctorates

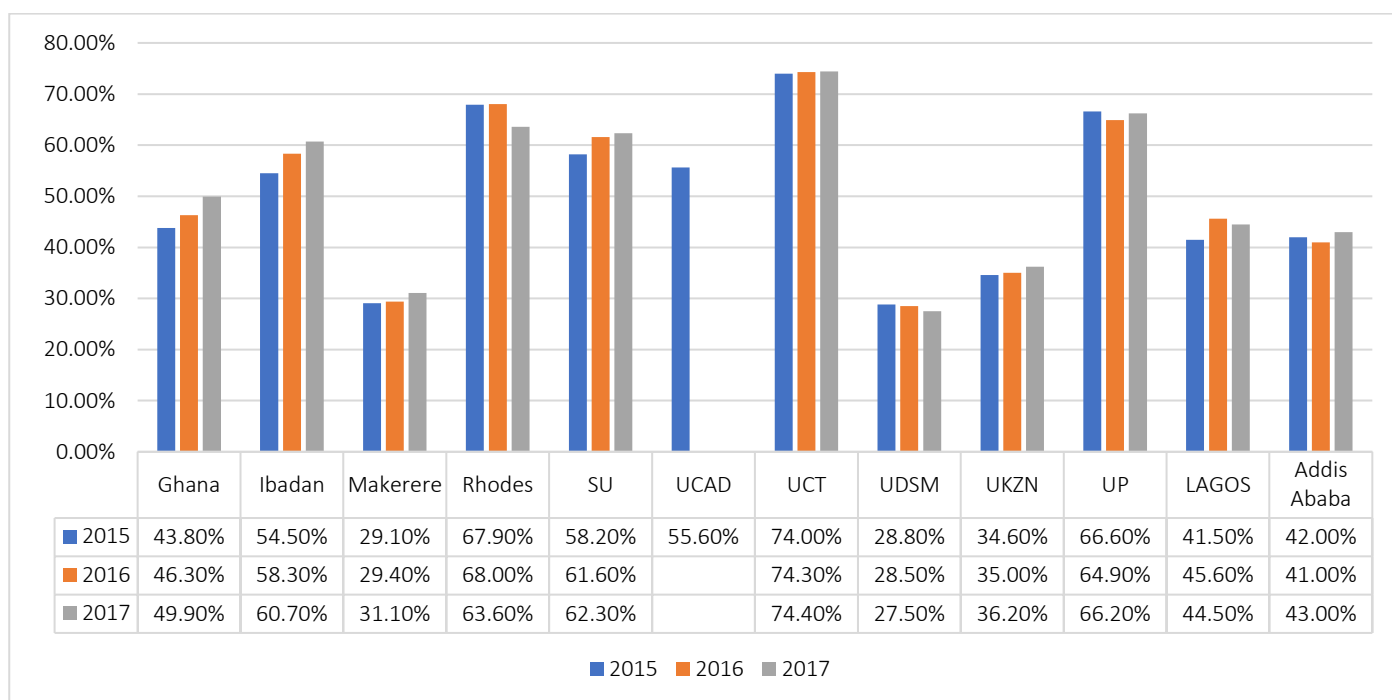


6.2 Permanent academic staff by rank

The ‘shape’ of the academic staff corps varies across the universities. As shown in Figure 6.4, most academic staff (more than 50%) at five of the universities hold senior positions, namely senior lecturer, associate professor, and professor. UCT had the highest percentage of senior academics (professors, associate professors and senior lecturers) throughout the three years (74.4% in 2017) while UDSM had the lowest (27.5% in 2017).

Whilst the criteria for assuming a senior academic rank vary across the universities, generally, a doctorate and a sustained research record are required. Against this observation, a combined reading of figures 6.3 and 6.4 suggests that several of the universities have a significant proportion of academics who probably acquired their doctorates recently and therefore do not have a sustained research record, or they are simply research inactive even though they have doctorates. At UG, for example, whilst 77% of academics had doctorates in 2017, less than 50% occupied senior academic positions. The converse is the case at UCT where 64.9% of academics had doctorates in 2017 but 74.4% occupied senior positions.

Figure 6.4: Professors, associate professors and senior lecturers as a percentage of permanent academic staff



6.3 Permanent academic staff by rank and gender

Figures 6.5 – 6.7 provide a summary of the distribution of senior academic staff (professors, associate professors, and senior lecturers) by gender. Figures 6.5 and 6.6 show that women are underrepresented in the professoriate, especially amongst full professors where their proportion ranged from 2.50% (Addis Ababa) to 32% (UP) in 2017. Amongst associate professors, the proportion of women ranged from 5.20 (Addis Ababa) to 63.5% (Stellenbosch) in 2017 and 13.2% (Addis Ababa) to 54.2% (UP) amongst senior lecturers. The underrepresentation of women is most pronounced Addis Ababa both within the senior academic staff corps and postgraduate enrolment. The disproportionately small number of senior women academics indicates not only a lack of diversity in senior academic positions, but also the possible presence of barriers that inhibit women from assuming these positions. More importantly, the low numbers of women in senior academic roles have implications for attracting female students into postgraduate studies and into academic careers.

Figure 6.5: Professor by gender, 2015 – 2017

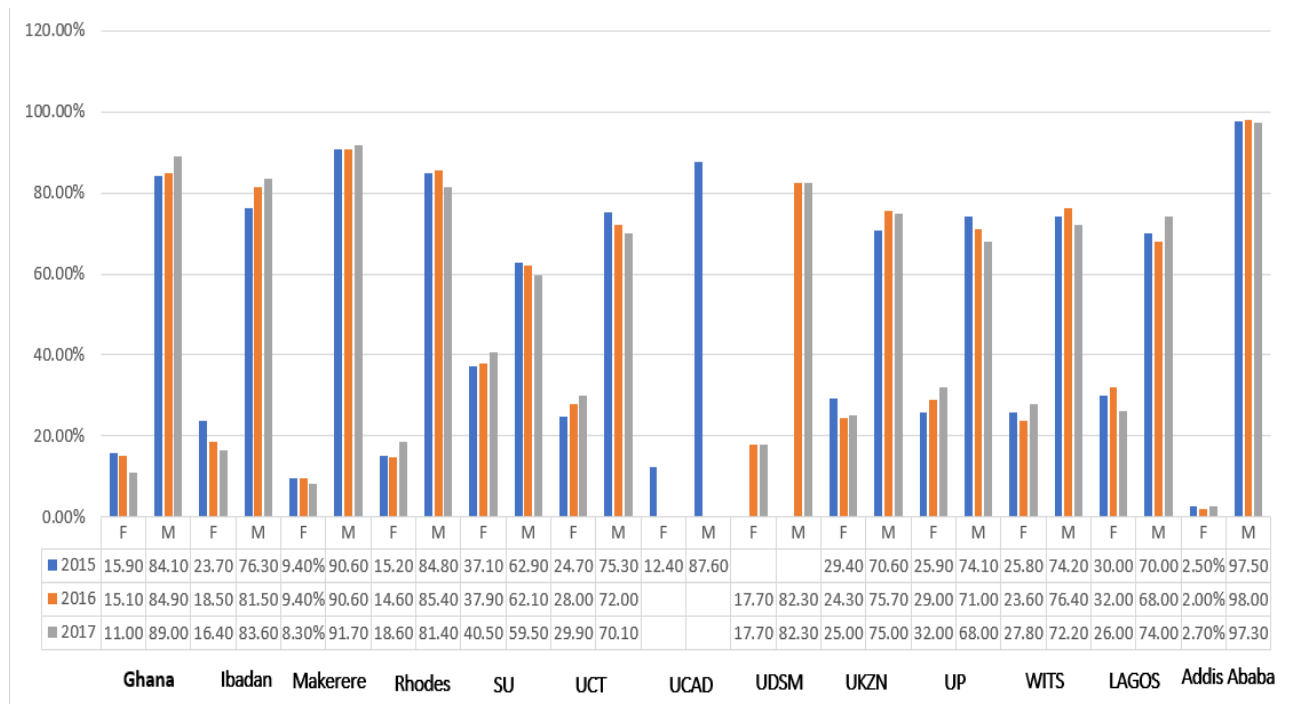


Figure 6.6: Associate Professor by gender, 2015 – 2017

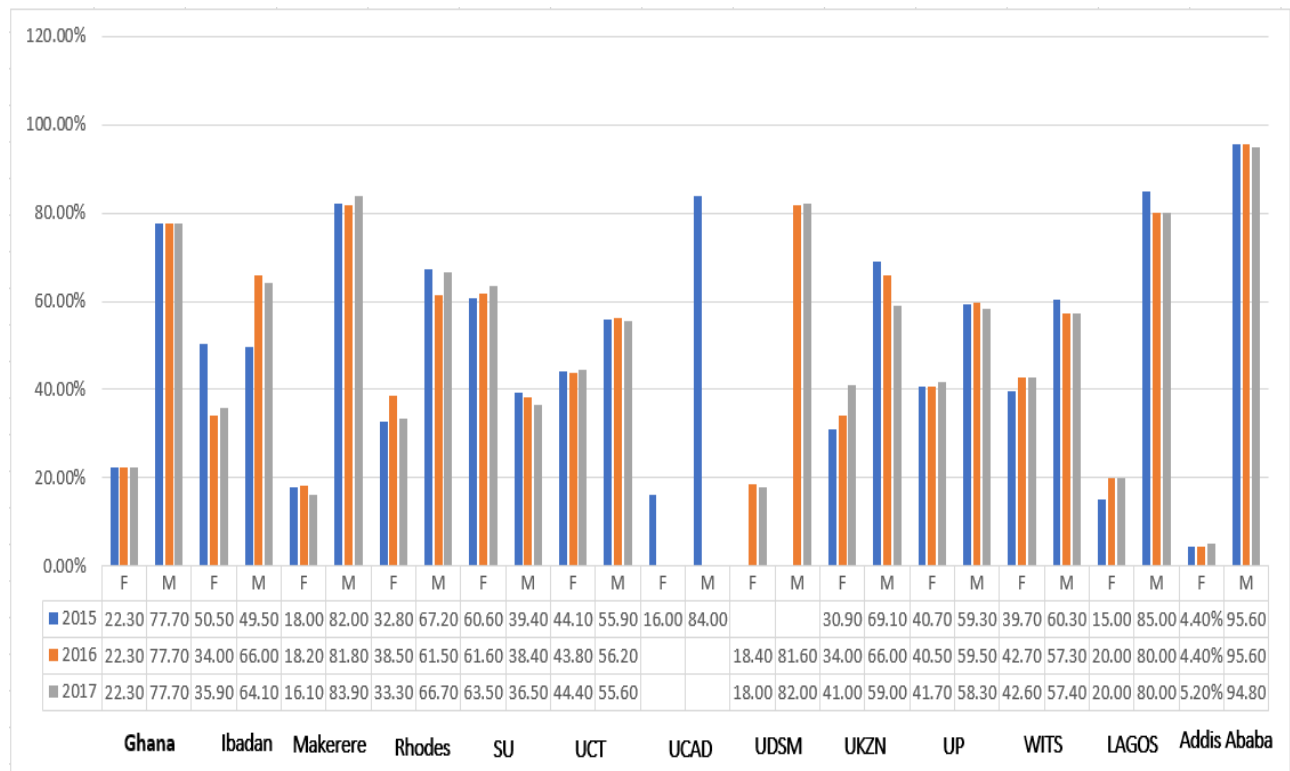
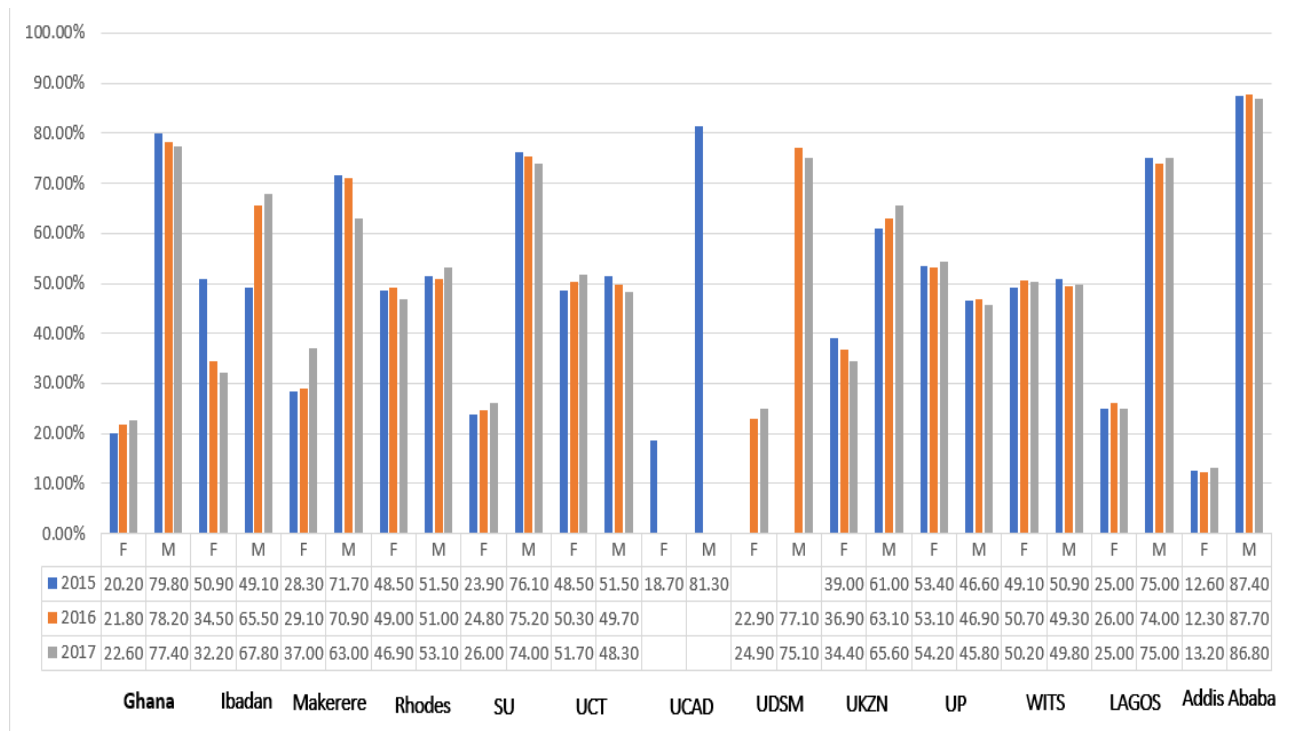


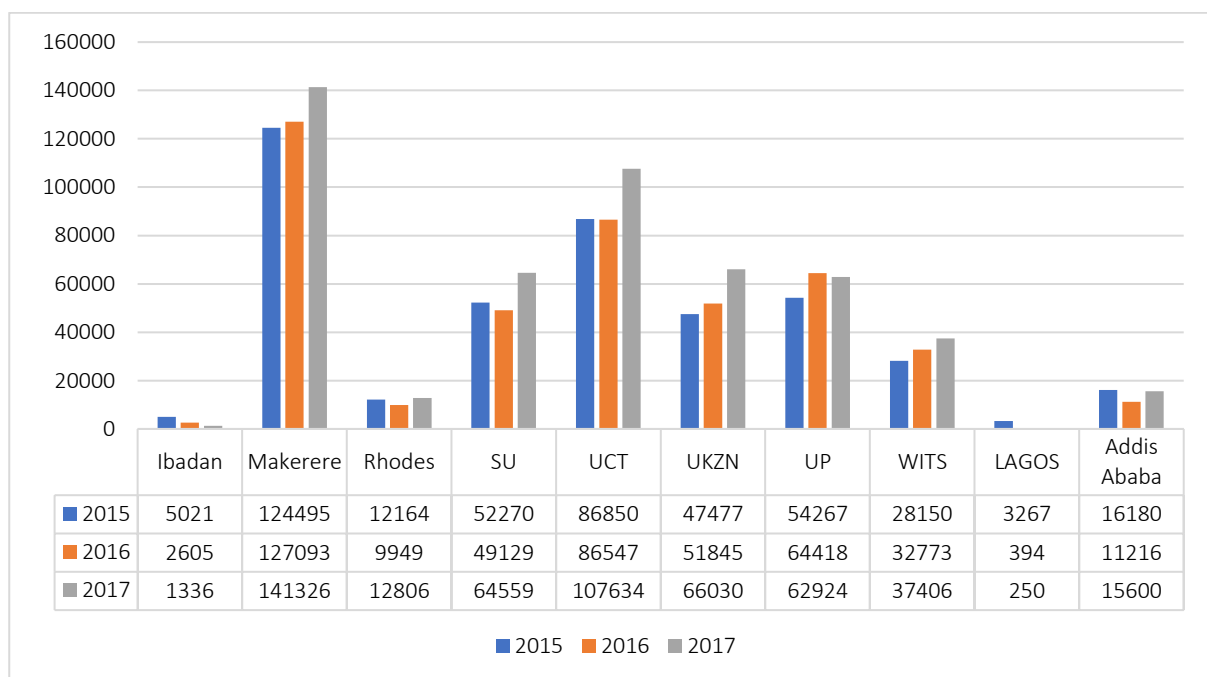
Figure 6.7: Senior lecturer by gender, 2015 – 2017



7.0 Research funding

Figure 7.1 provides a summary of funds received by universities to support research. The funds were received from multiple sources, amongst them, government sources, national research councils and funding agencies and foundations in Africa and internationally.

Figure 7.1: Research funding, 2015-2017 (US \$ '000)



Three of the universities (Makerere, UKZN and Wits) increased their research funding across the three years, four of them (Rhodes, Stellenbosch, UCT and Addis Ababa) recorded a dip in 2016 compared to 2015, while two of the universities, Ibadan, and Lagos, recorded a consistent decline.

Probably the most interesting observation regarding research funding is the varied extents of dependence on the various sources (see individual institutional profiles in the appendix) and year-on-year fluctuations across the various sources. Both indicators signal the reliability of the funding sources. National research councils and international agencies and foundations outside Africa were the most important sources of funding for Ibadan, Makerere, Rhodes, UCT and Wits, while government funding was the most important source of research funding for SU, UKZN and UP. Lagos indicated funding from only one source - International funding from agencies and foundations outside of Africa. International funding agencies based in Africa and those based outside the continent were the most important sources of research funding for Addis Ababa.

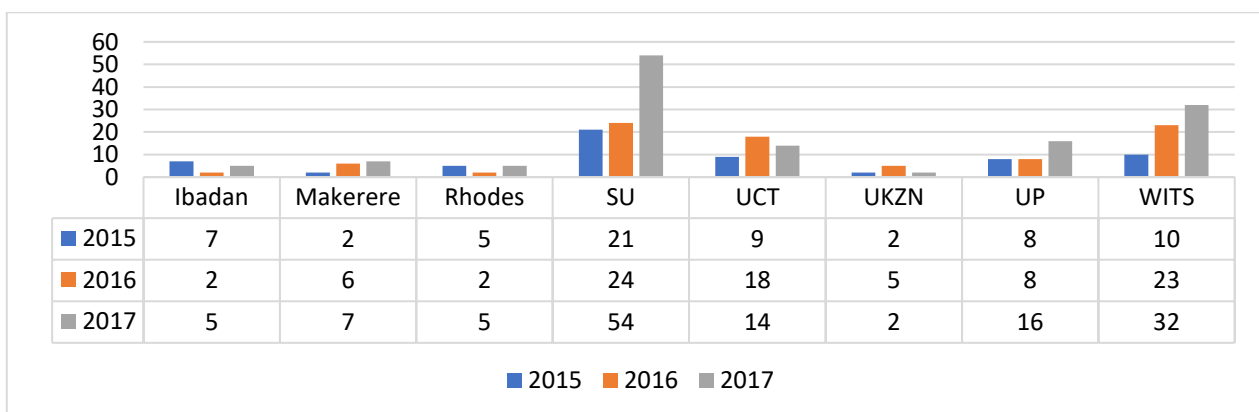
Africa-based agencies could be described as the least reliable of all the funding sources. Throughout the three years, Ibadan, Lagos, Rhodes, Stellenbosch and UP did not receive funding from this source. In the same vein, UCT and UKZN did not receive research funding from this source in one year and two years, respectively. However, Makerere, Wits and Addis Ababa leveraged significant levels of funding from this source throughout the three years. In 2017 funding from Africa-based agencies accounted for 41.4% of Addis Ababa's research funding.

All the universities experienced sharp fluctuations in at least one of their major funding sources, which might pose planning challenges. For example, in 2015 65% (US\$ 3 264 571) of Ibadan's research funding came from national research councils but declined to 11.1% in 2016 (US\$ 289 529). Lagos experienced the steepest decline, from US\$ 3,267,288.75 in 2015 to US\$ \$250,305.14. The fluctuations in funding can be explained by two main reasons: (i) inability by institutions to sustain increased funding levels from the affected sources and (ii) the effect of multi-year grants whereby institutions receive higher disbursements in the initial years, followed by lower disbursements in the later years of the grants.

8.0 Patents

Figure 8.1 presents the number of patents held by universities. As shown in the graph, the pattern for university patenting is heterogeneous. Five of the universities (Makerere, SU, UCT, UP and Wits) increased their number of registered patents from 2015 – 2017 while Ibadan recorded a decline.

Figure 8.1: Patents, 2015 - 2017



9.0 Comparison with HERANA data

Five ARUA-member universities, namely UCT, UG, Makerere, UDSM and University of Nairobi (UoN), participated in a study, from 2007 – 2013, on performance indicators by the Centre for Higher Education Transformation (CHET),¹ under the auspices of the Higher Education Research and Advocacy Network in Africa (HERANA). The study, which involved eight so-called flagship universities in Africa, collected data on student enrolments, graduates, staff, research outputs and income and expenditure covering the period 2001 - 2011. This section compares the data reported in the HERANA study to the data in the current study, for corresponding indicators, to establish trends since 2011. In addition to the five universities listed above, the HERANA study also included the University of Botswana, Eduardo Mondlane University, and the University of Mauritius.

One of the key findings of the HERANA study was that all the eight universities were primarily undergraduate institutions. This finding applies to the current study, except for Ibadan whose share of postgraduate enrolments was above 45% over the 2015 – 2017 period. The proportion of postgraduate students in the four ARUA universities which participated in the HERANA study, and which have provided data for this study, has increased. From 2011 – 2017, UCT's postgraduate proportion increased from 33% to 38%, UG's from 11% to 16.1%, Makerere's from 6% to 12.9% and UDSM's from 8% to 10.5%.

Regarding female enrolments in master's programmes, compared to 2011, UCT's proportion increased from 46% to 49.5% in 2017, UG's from 37% to 42.3% and UDSM's from 37% to 59.9% over the same period. Makerere's proportion of female master's enrolments declined from 42% in 2011 to 37.5% in 2017. The following is the trend regarding female doctoral enrolments: UCT – from 45% in 2011 to 48.8% in 2017; UG – from 27% in 2011 to 42% in 2017; Makerere – from 28% in 2011 to 34.6% and UDSM – from 28% to 64.2%. Whilst all the universities have increased their proportion of female doctoral enrolments, UG's growth by 15 percentage points and UDSM's growth by 36.2 percentage points, is remarkable.

Whereas some changes have been registered regarding doctoral graduates as a percentage of all graduates, their proportion remains small. UCT's proportion of doctoral graduates has grown from 2.51% in 2011 to 3.8% in 2017, UDSM's proportion of doctoral students has doubled, from 0.49% in 2011 to 1% in 2017, UG's increased marginally, from 0.45% to 0.50% in 2017, and Makerere's declined, from 0.65% to 0.50%.

Compared to 2011, the proportion of academics with doctoral degrees across the four universities has increased, to various extents. UCT has grown its proportion of academics with doctoral degrees from 63% in 2011 to 64.9% in 2017, UG from 50% in 2011 to 77% in 2017 and Makerere from 43% to 52% in 2017. Regarding the 'shape' of the academic staff corps, for senior lecturers, UCT increased its proportion from 29% in 2011 to 32.3% in 2017, UG from 24% to 25.4% and Makerere from 14% to 15.1%. UDSM's proportion of senior lecturers declined from 17% in 2011 to 15.5% in 2017. The proportion of professors and associate professors increased from 40% in 2011 to 42.1% in 2017 at UCT, 18% to 19.2% at UG, 16% to 16.1% at Makerere and declined from 14% to 12% at UDSM, over the same period. Overall, the 'shape' of the academic staff corps remained stable with three of the universities recording marginal increases in the proportion of senior lecturers and associate and full professors, while UDSM recorded declines.

¹ Bunting, I., Cloete, N. & van Schalkwyk (2014) *An empirical overview of eight flagship universities in Africa: 2001 - 2011*. A report of the Higher Education Research and Advocacy Network in Africa (HERANA). Cape Town: Centre for Higher Education Transformation.

10.0 Concluding comment

The research profiles of ARUA universities are heterogeneous, but with some broadly similar patterns. For example, ARUA universities can be described as predominantly undergraduate universities on account of the 'shape' of student enrolments. All the universities, except Ibadan, have a postgraduate enrolment of lower than 40% of the total student enrolment. When postgraduate enrolments below master's are excluded, the share of postgraduate enrolments declines to below 30%, especially for South African universities.

Similarly, whilst the representation of women academic staff varies across the universities, the general observation is that this group is underrepresented at most of the universities. Only at two universities is the share of women academic staff above 50%. The underrepresentation of women is more pronounced in senior academic positions. The share of women amongst full professors ranged from 2.5% (Addis Ababa) to 32% (UP). The underrepresentation of women is equally pronounced in postgraduate enrolments, especially in master's and doctoral programmes. It is clear from the data that advancing gender equality should be an important priority for ARUA universities.

ARUA universities offer a wide range of doctoral programmes across the various fields of study. Whilst there are year-on-year fluctuations in enrolments across the various fields of study, the general trend is that most of the master's and doctoral enrolments are in STEM fields. Enrolments by female students are however generally skewed towards Social Sciences, Humanities and BEMS.

Regarding academic staff with doctorates, more than 50% of permanent academic staff at all the universities have doctorates (except Addis Ababa which had 29.9%), which suggests the existence of capacity for research and postgraduate supervision. The share of permanent academic staff with doctorates however varies across the institutions, from 29.9 % to 77% in 2017.

The inverse correlation between the proportion of academic staff with doctorates and the proportion of academics occupying senior ranks, indicates a need for ARUA universities to implement or strengthen interventions aimed at supporting academics with doctorates to become senior scholars. Such interventions may include structured mentorship and early career support programmes, postdoctoral fellowships, co-supervision arrangements, support with grant writing and conference attendance, and participation in research projects led by senior scholars. Junior academics with doctorates represent an opportunity for ARUA universities to strengthen their research and postgraduate supervision capacity and improve their research productivity.

UNIVERSITY OF GHANA

Figure1: UG vs. PG enrolment, 2015 – 2017

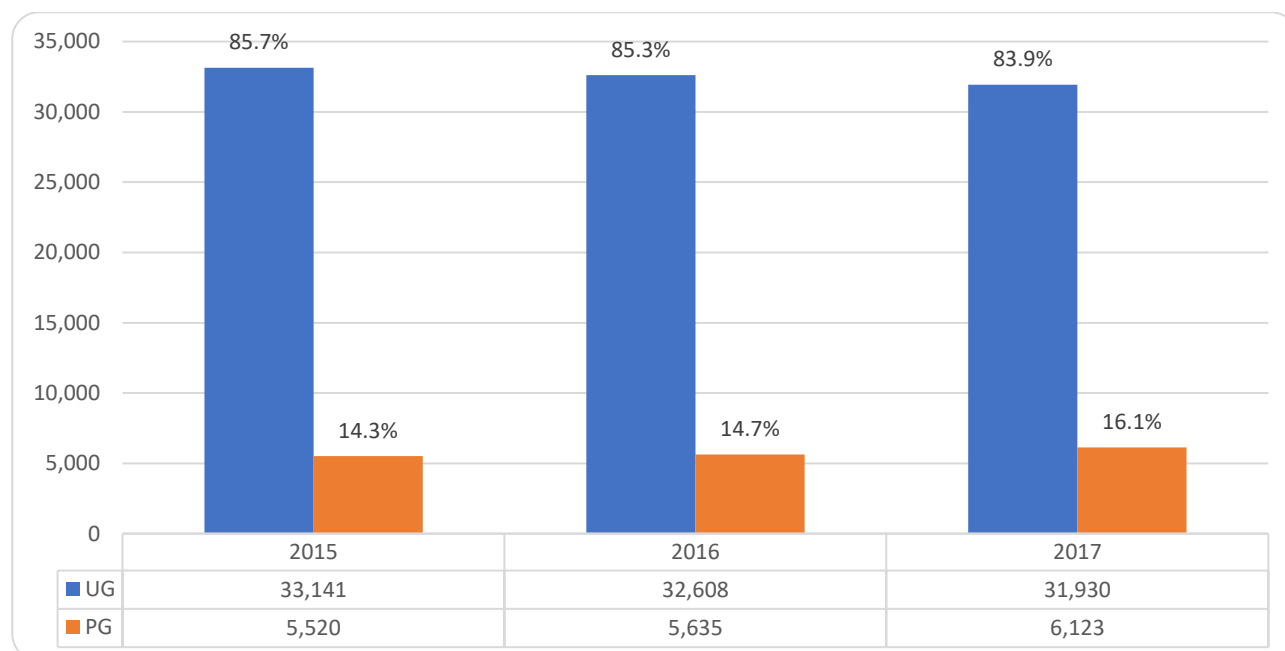


Table 1: Percentage of UG and PG enrolment by study field

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 7.2% | 1.1% | 8.3% | 8.0% | 1.1% | 9.1% | 8.2% | 0.9% | 9.2% |
| Engineering and Technology | 1.9% | 0.3% | 2.3% | 1.8% | 0.3% | 2.1% | 2.2% | 0.3% | 2.5% |
| Medical and Health sciences | 8.0% | 1.2% | 9.2% | 9.6% | 1.4% | 11.0% | 10.5% | 2.1% | 12.6% |
| Agricultural sciences | 3.4% | 0.8% | 4.3% | 3.5% | 0.9% | 4.3% | 3.6% | 0.7% | 4.3% |
| Social sciences | 0.8% | 2.8% | 3.7% | 1.0% | 3.4% | 4.3% | 1.5% | 4.0% | 5.4% |
| Humanities | 49.9% | 1.3% | 51.1% | 45.5% | 1.2% | 46.7% | 40.9% | 1.1% | 42.0% |
| Business, Economics and Management Studies | 14.5% | 6.7% | 21.2% | 15.9% | 6.5% | 22.4% | 17.0% | 6.9% | 24.0% |
| Total | 85.7% | 14.3% | 100.0% | 85.3% | 14.7% | 100.0% | 83.9% | 16.1% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments, 2015 – 2017

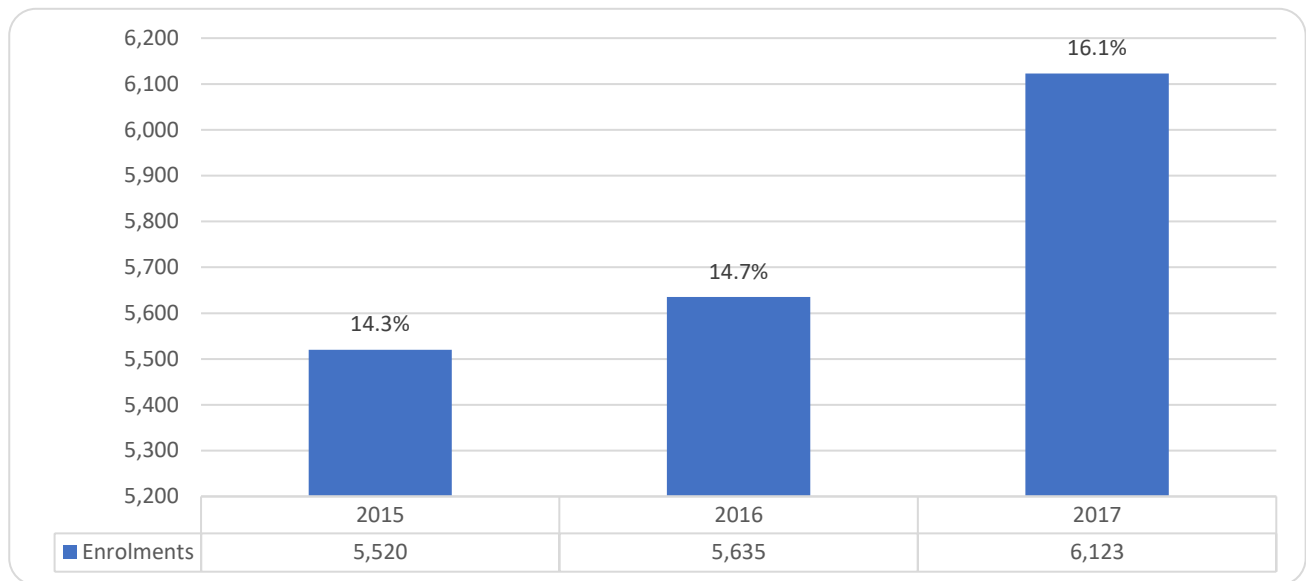


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 1.1% | 1.1% | 0.9% |
| Engineering and Technology | 0.3% | 0.3% | 0.3% |
| Medical and Health sciences | 1.2% | 1.4% | 2.1% |
| Agricultural sciences | 0.8% | 0.9% | 0.7% |
| Social sciences | 2.8% | 3.4% | 4.0% |
| Humanities | 1.3% | 1.2% | 1.1% |
| Business, Economics and Management Studies | 6.7% | 6.5% | 6.9% |
| Total | 14.3% | 14.7% | 16.1% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

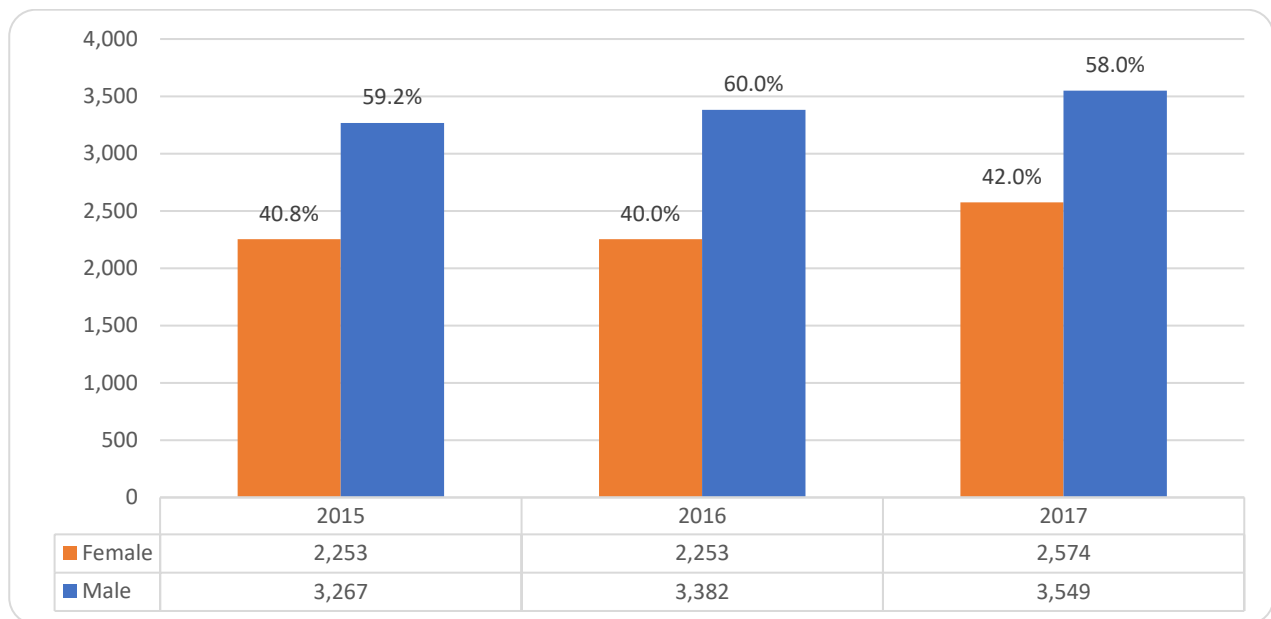


Figure 4: Master's enrolments by gender, 2015 – 2017

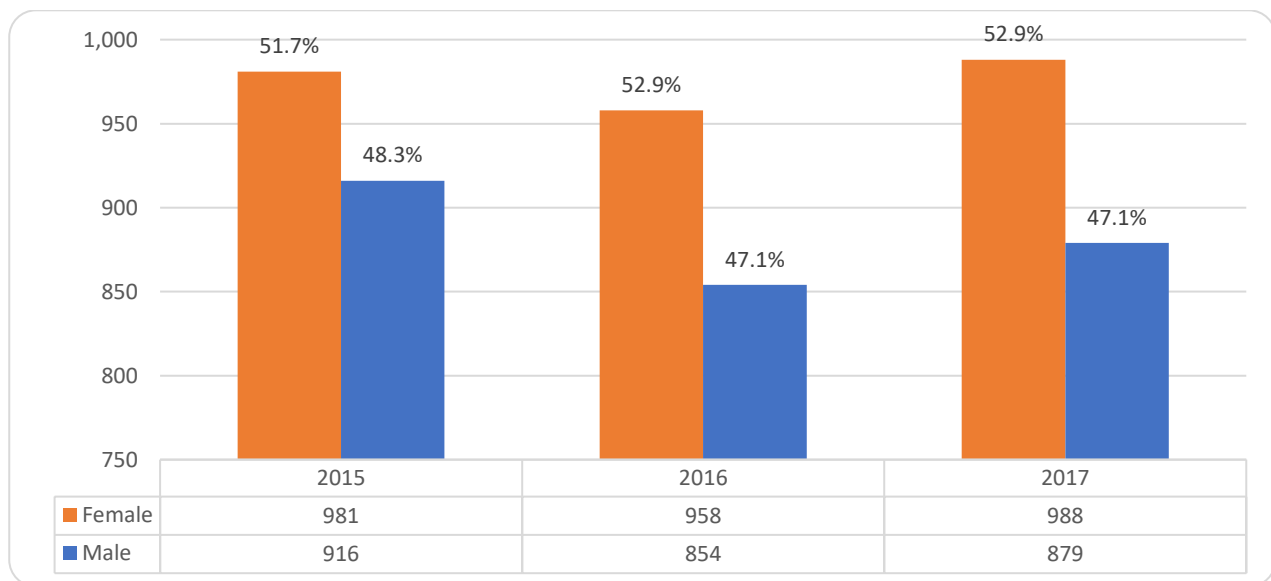
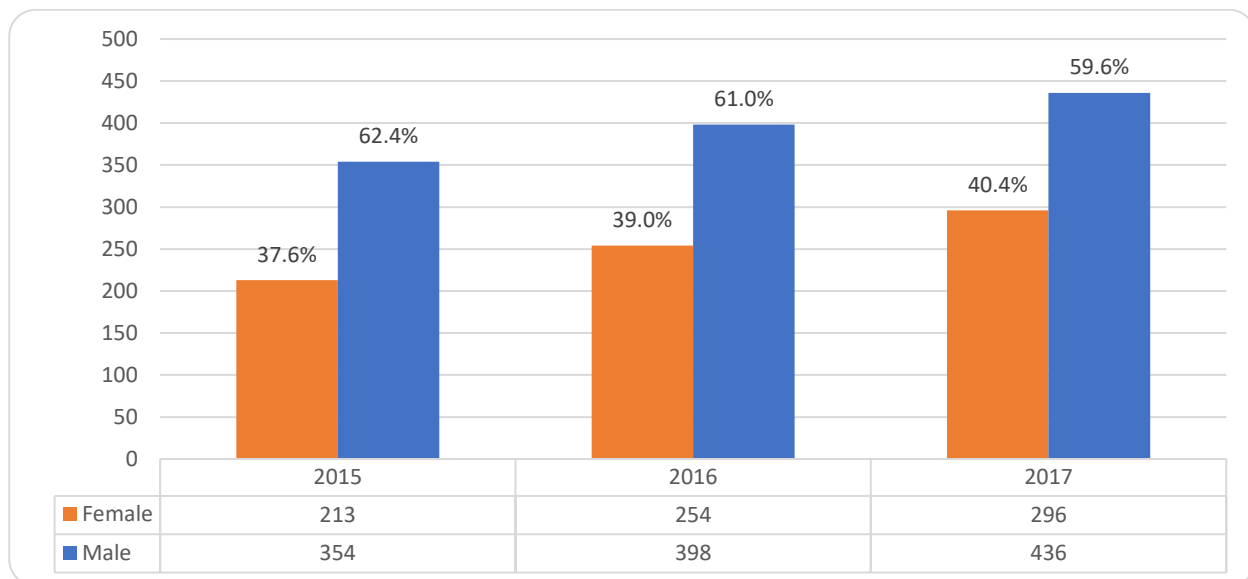


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG and PG graduates as a % of total graduates, 2015 – 2017

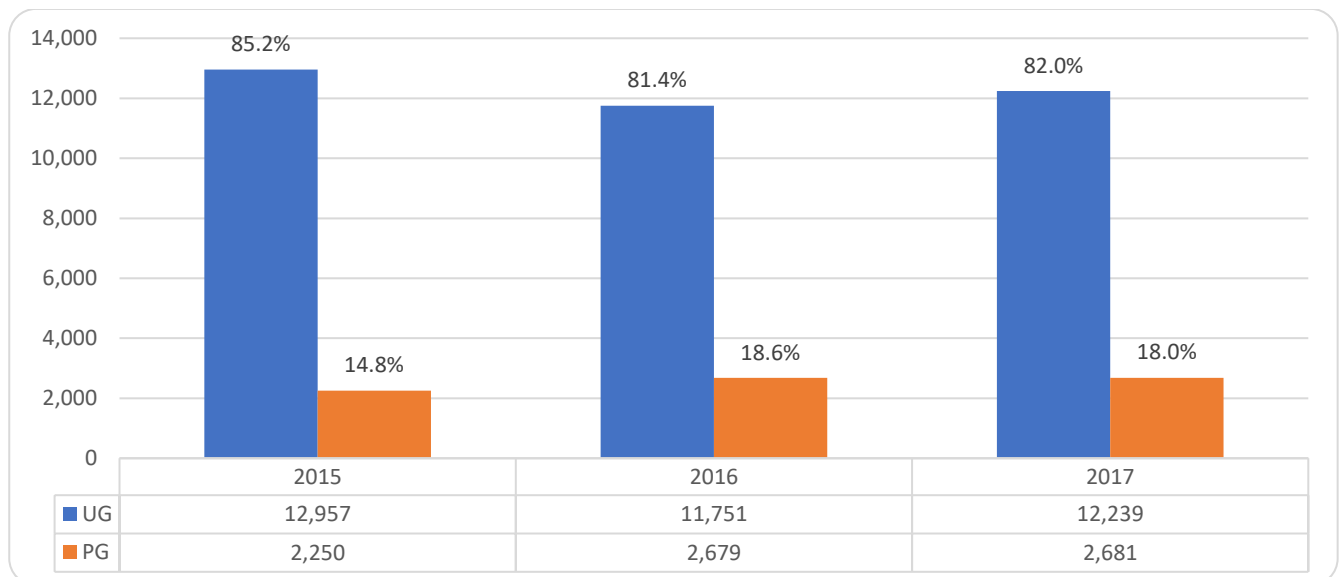


Table 3: UG and PG Graduates by field of study, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 3.3% | 1.4% | 4.6% | 3.5% | 2.0% | 5.5% | 5.3% | 1.7% | 7.0% |
| Engineering and Technology | 0.4% | 0.1% | 0.5% | 0.7% | 0.1% | 0.8% | 1.9% | 0.0% | 1.9% |
| Medical and Health sciences | 6.0% | 1.9% | 7.9% | 5.7% | 2.7% | 8.4% | 7.8% | 3.0% | 10.8% |
| Agricultural sciences | 1.4% | 0.6% | 2.0% | 1.6% | 0.6% | 2.3% | 2.2% | 0.6% | 2.8% |
| Social sciences | 0.5% | 2.8% | 3.4% | 0.7% | 4.1% | 4.9% | 0.8% | 4.1% | 5.0% |
| Humanities | 67.3% | 1.2% | 68.5% | 62.3% | 1.6% | 63.9% | 55.3% | 1.2% | 56.5% |
| Business, Economics and Management Studies | 6.4% | 6.7% | 13.1% | 6.9% | 7.4% | 14.4% | 8.8% | 7.2% | 16.1% |
| Total | 85.2% | 14.8% | 100.0% | 81.4% | 18.6% | 100.0% | 82.0% | 18.0% | 100.0% |

Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

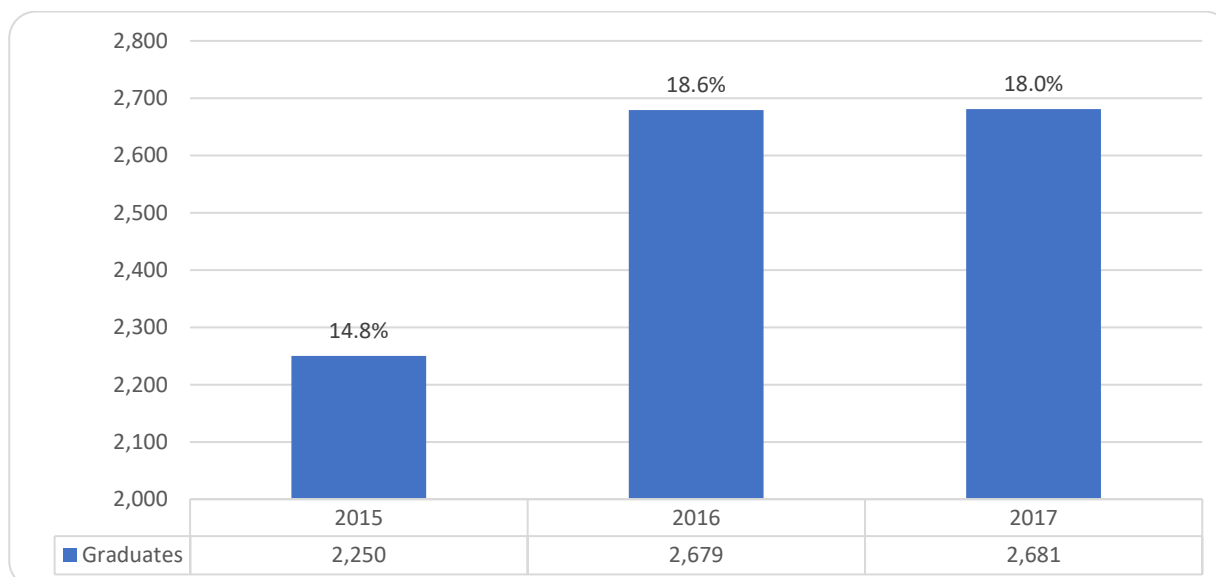


Table 4: M & D graduates per study field as a % of total graduates (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 0.8% | 1.2% | 1.0% |
| Engineering and Technology | 0.3% | 0.4% | 0.3% |
| Medical and Health sciences | 1.3% | 1.7% | 2.1% |
| Agricultural sciences | 1.0% | 1.0% | 1.0% |
| Social sciences | 1.9% | 3.1% | 3.2% |
| Humanities | 1.2% | 1.6% | 1.2% |
| Business, Economics and Management Studies | 8.2% | 9.5% | 9.1% |
| Total | 14.8% | 18.6% | 18.0% |

Figure 8: PhD graduates as a % of total graduates (UG & PG), 2015 – 2017

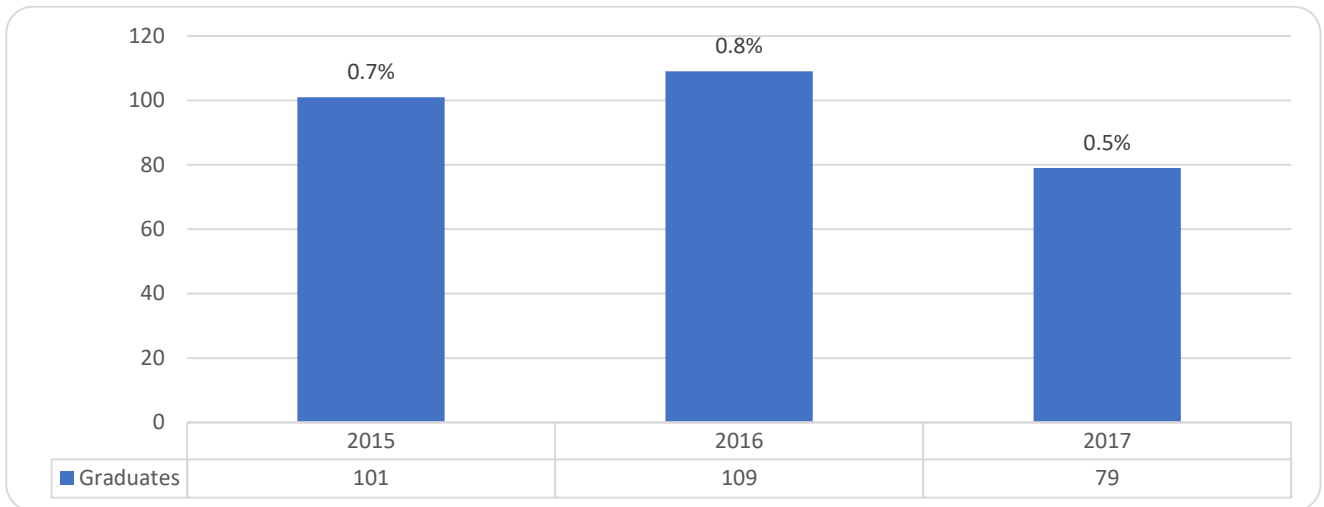


Figure 9: Postgraduate graduates by gender, 2015 – 2017

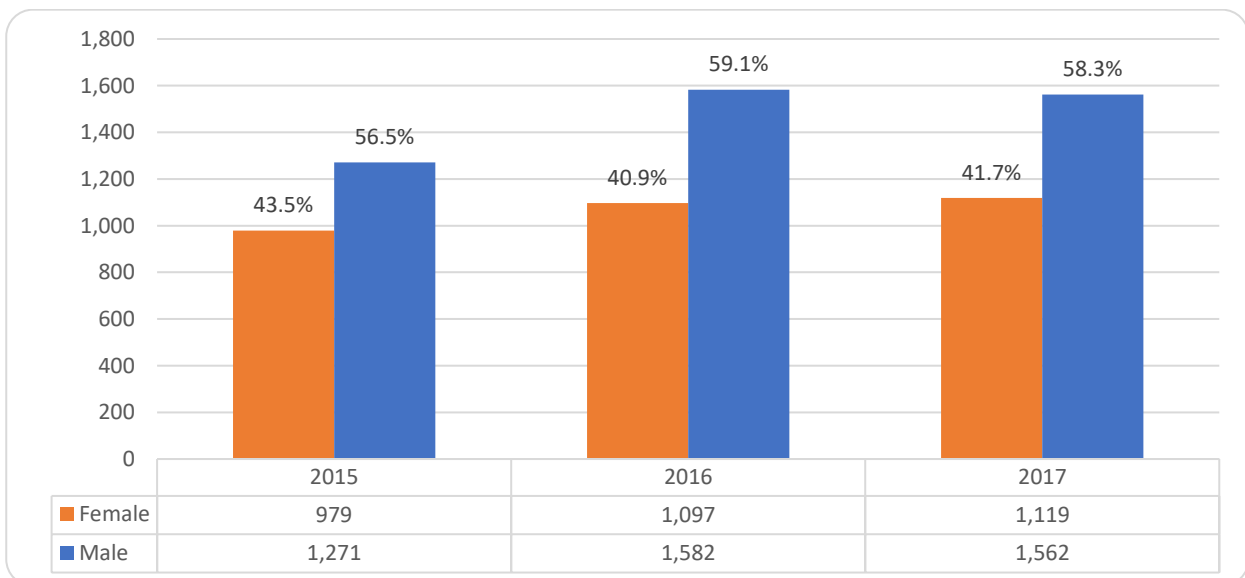


Figure 10: Master’s graduates by gender, 2015 – 2017

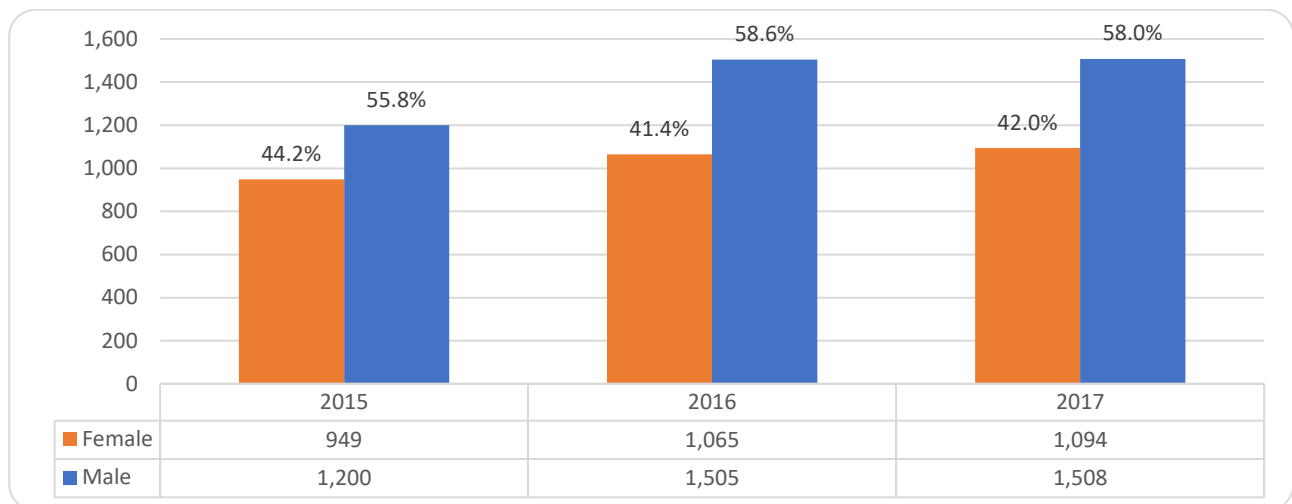


Figure 11: Doctoral graduates by gender, 2015 – 2017

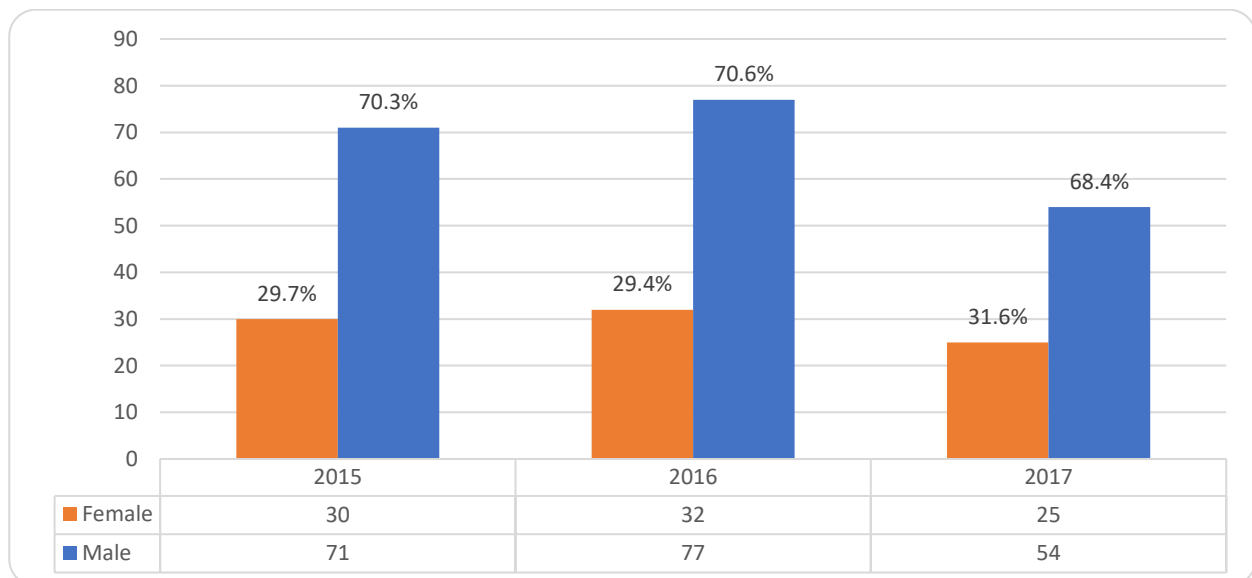
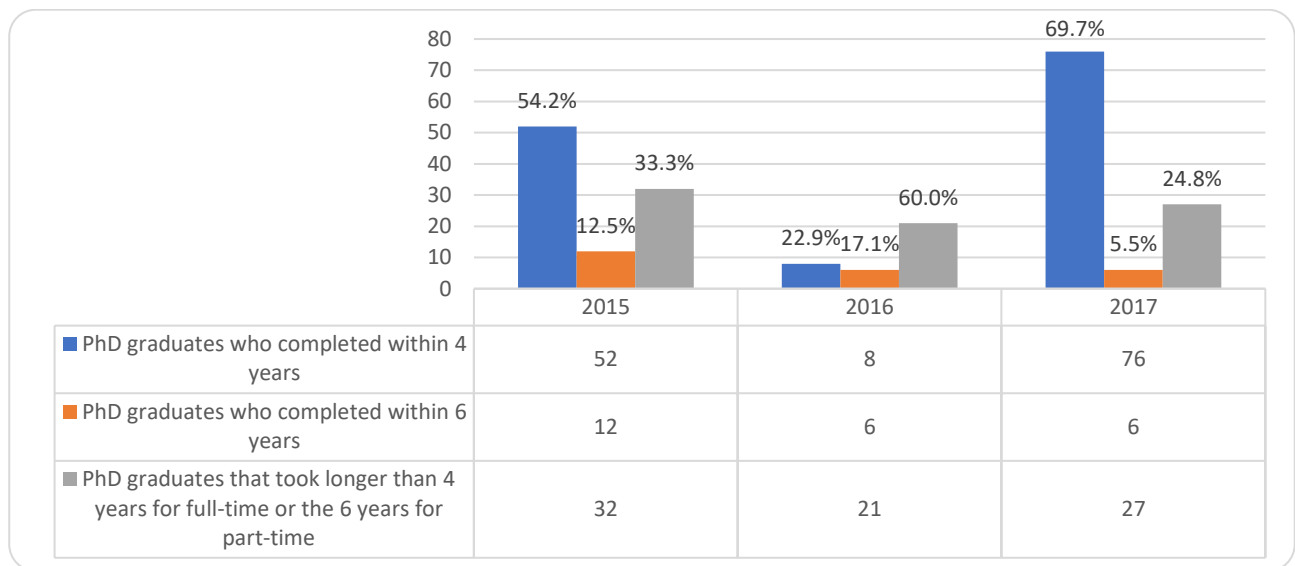


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

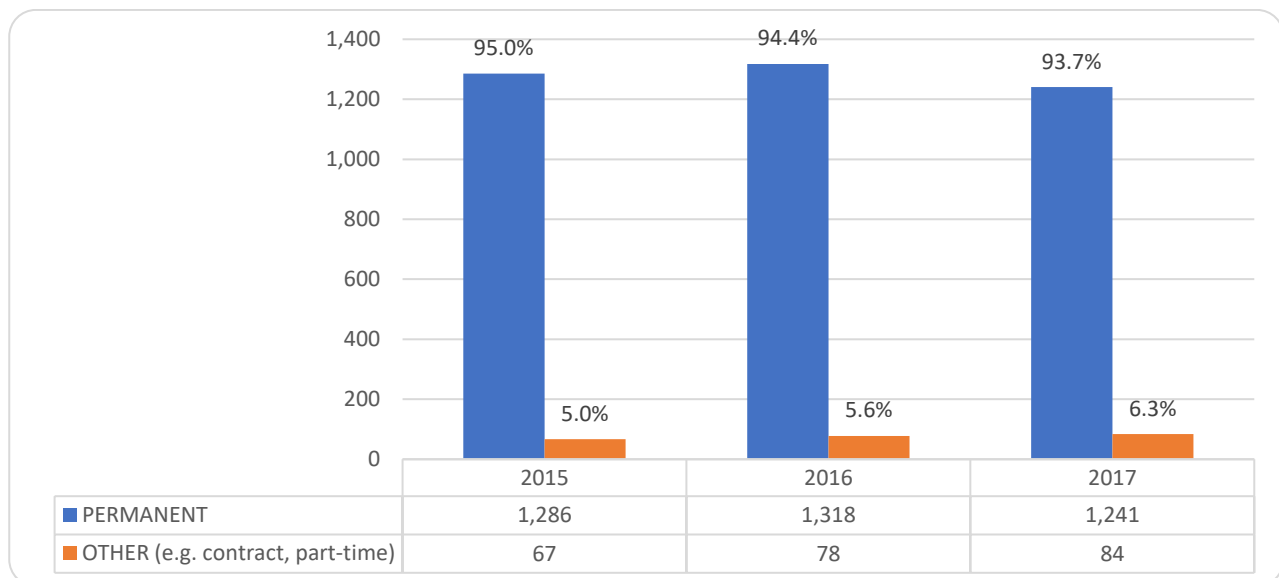


Figure 14: Permanent academic staff by gender as a % of all academic staff

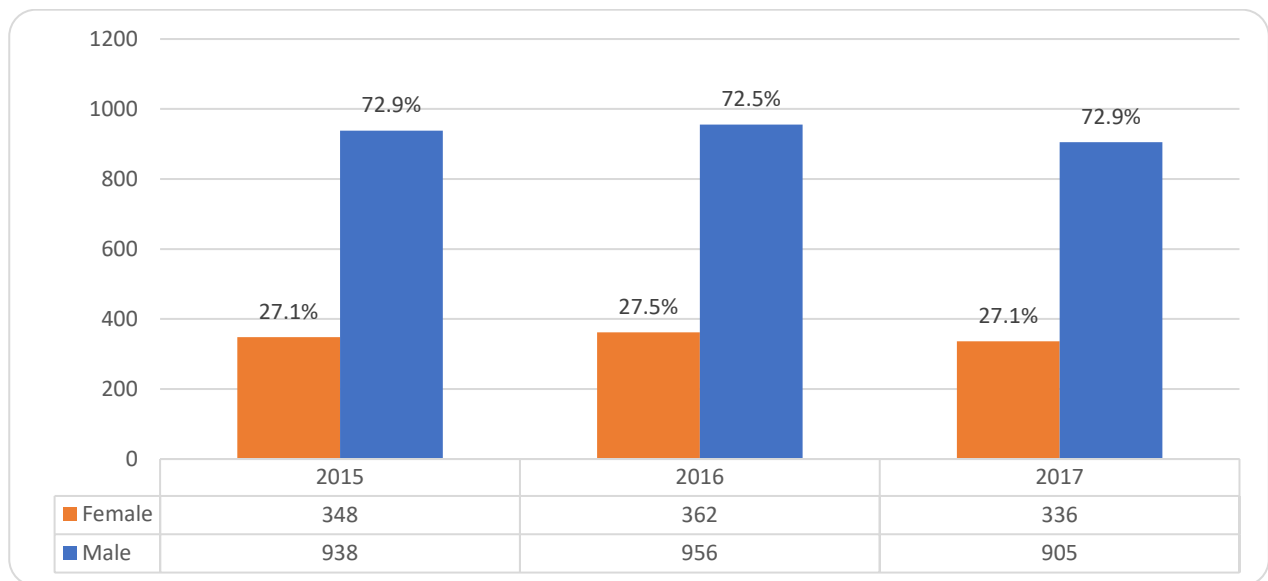


Figure 15: Permanent academic staff with PhD by gender as a % of all permanent academic staff

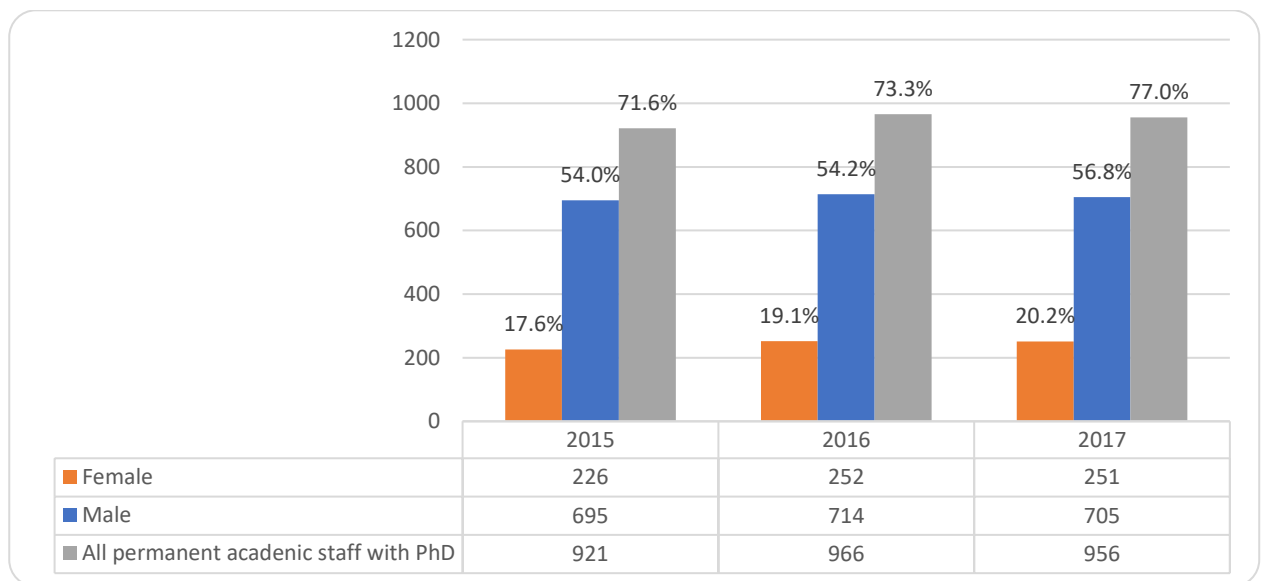


Figure 16: Professors as a % of all permanent academic staff, 2015 – 2017

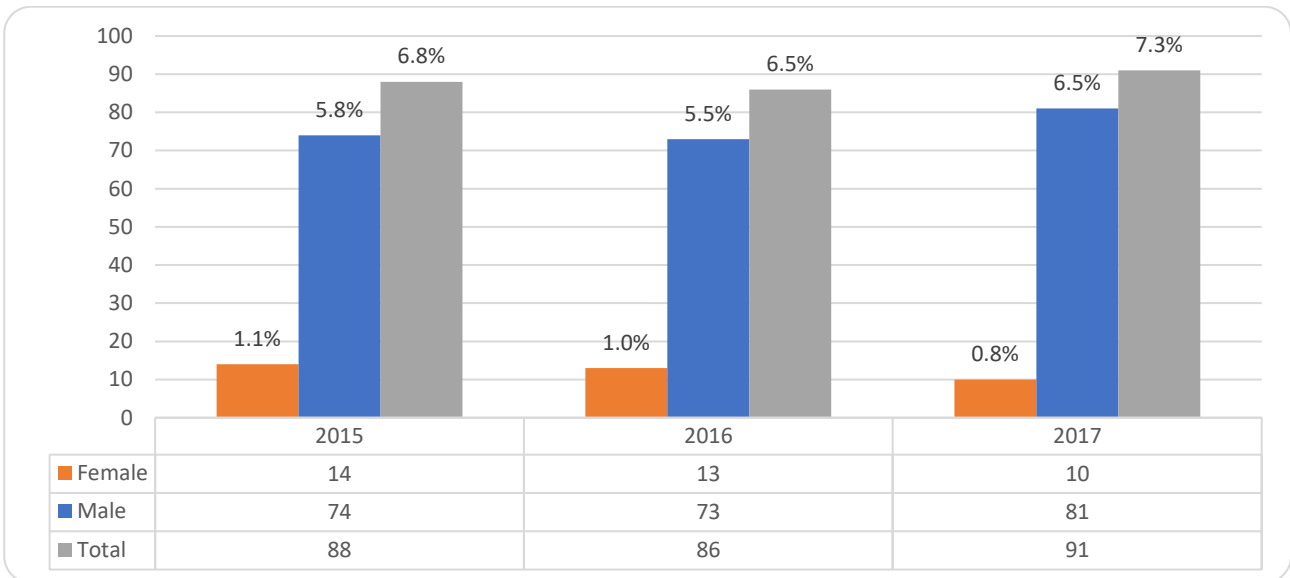


Figure 17: Associate professors as a % of all permanent academic staff, 2015 – 2017

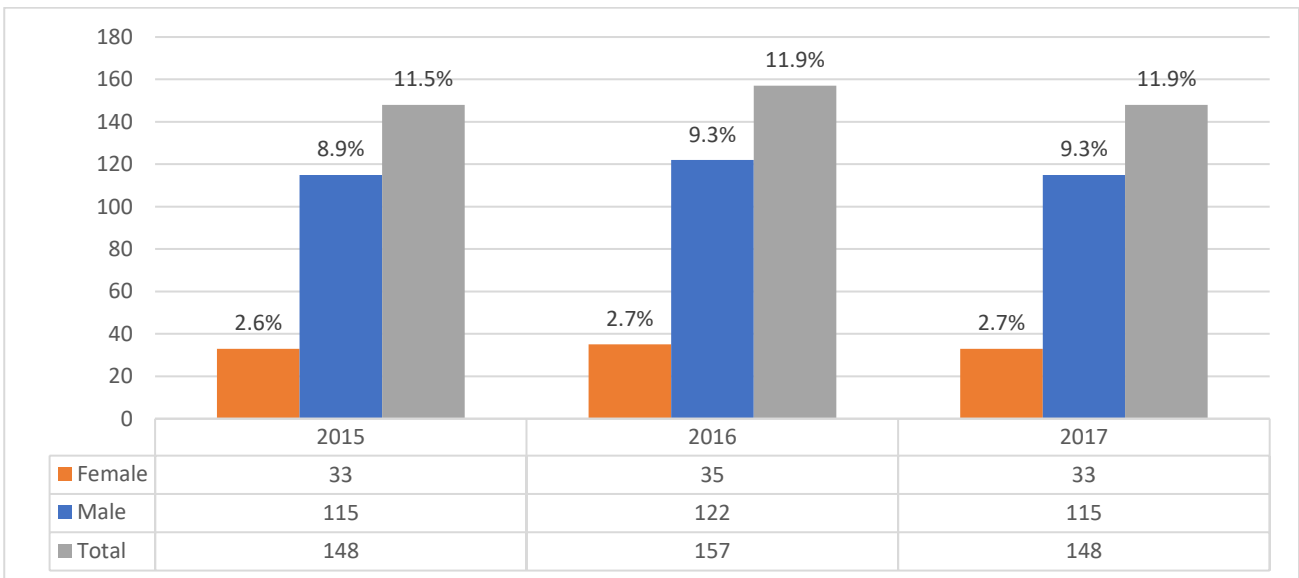


Figure 18: Senior lecturers as a % of all permanent academic staff, 2015 – 2017

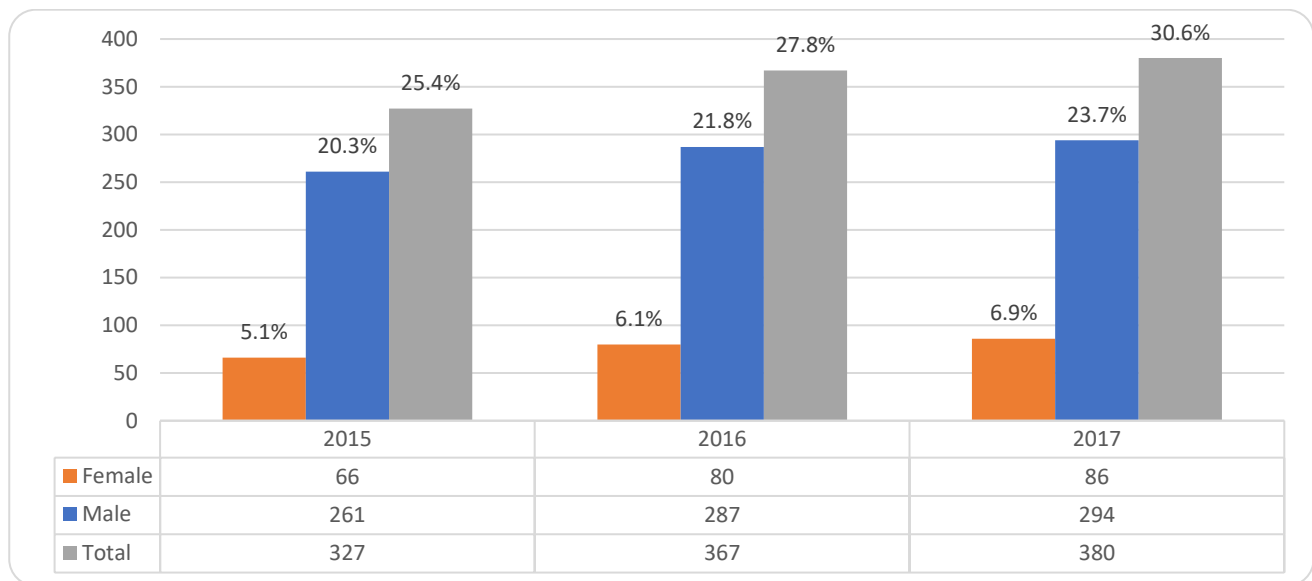


Figure 19: Lecturers and others as a % of all permanent academic staff

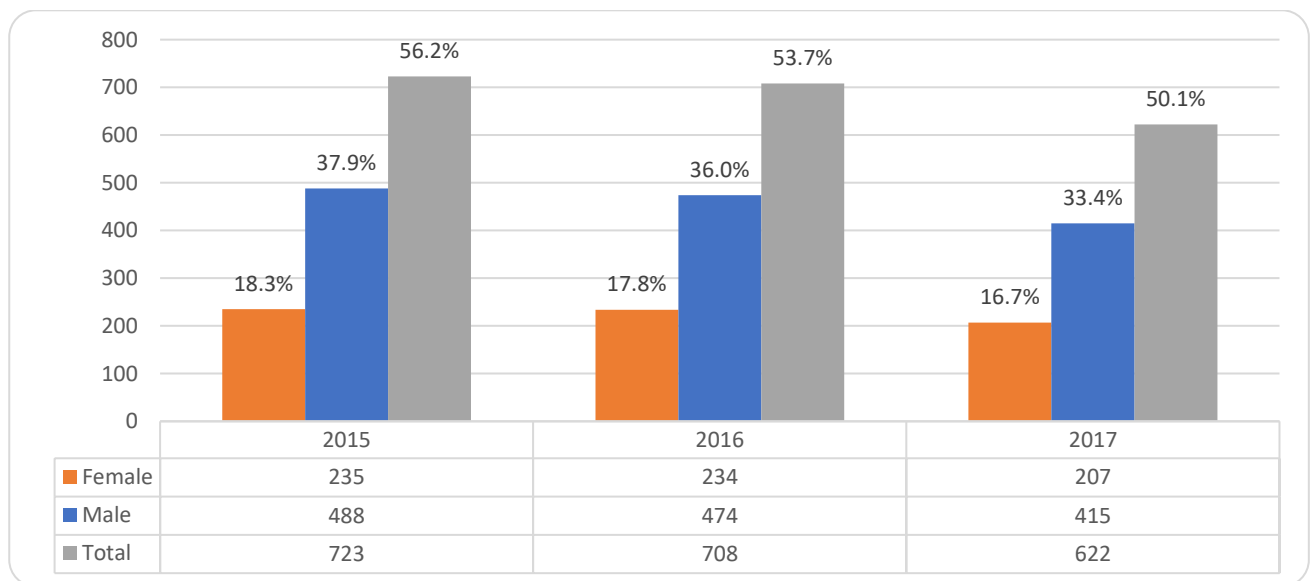
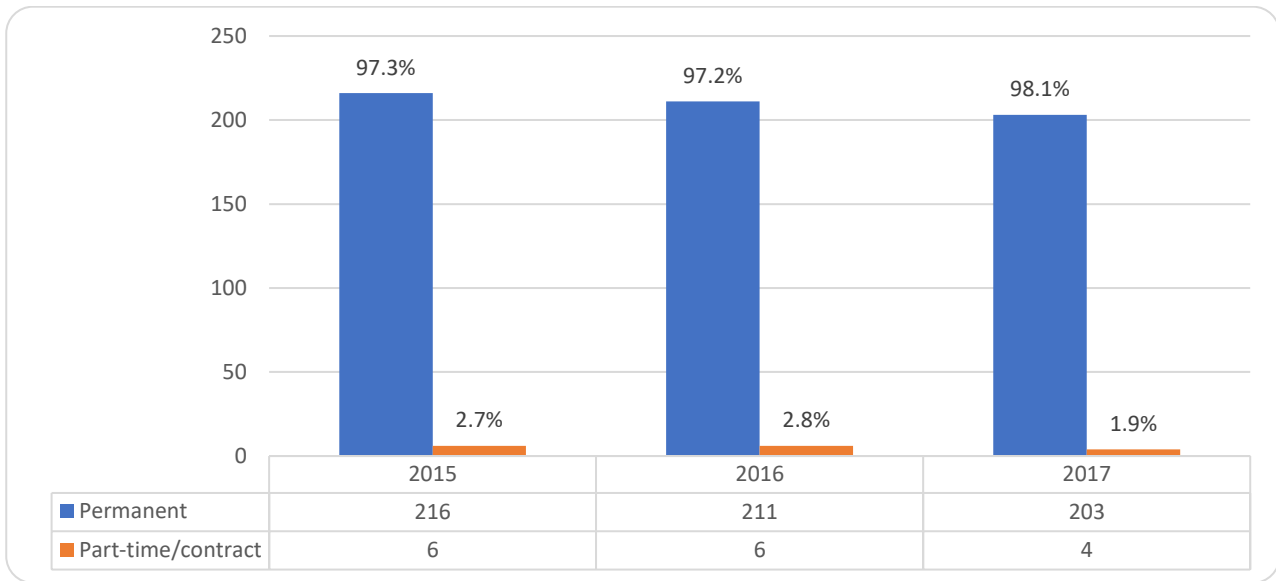


Figure 20: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017



Note: University of Ghana did not provide data on postdoctoral research fellows and research income

Figure 21: Professors by gender, 2015 – 2017

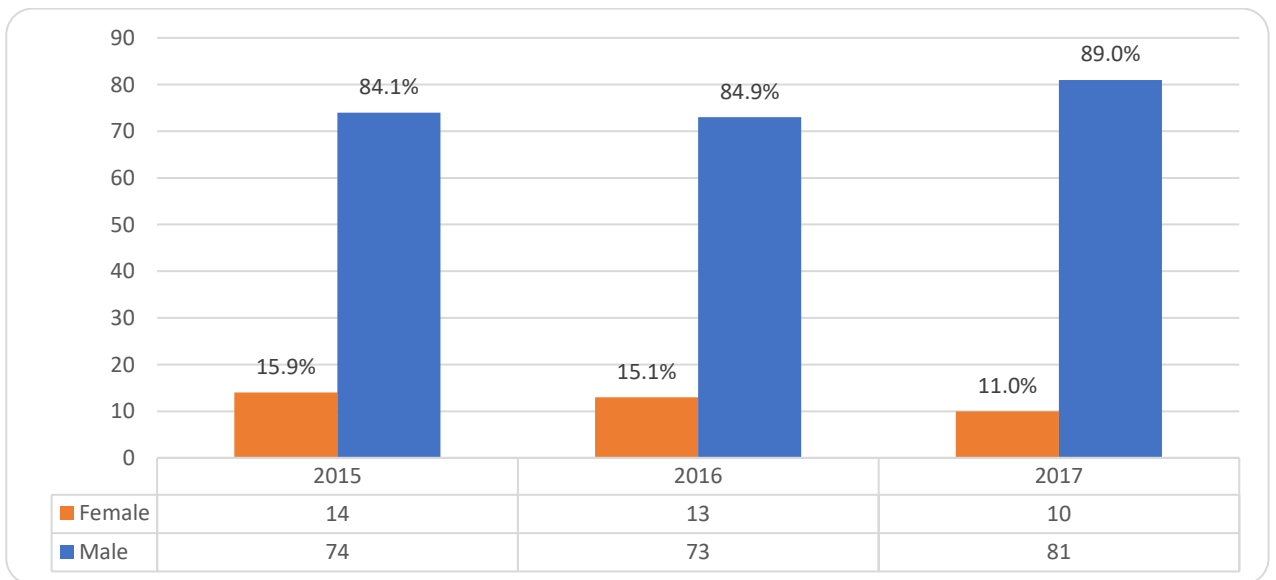


Figure 22: Associate Professors by gender, 2015 – 2017

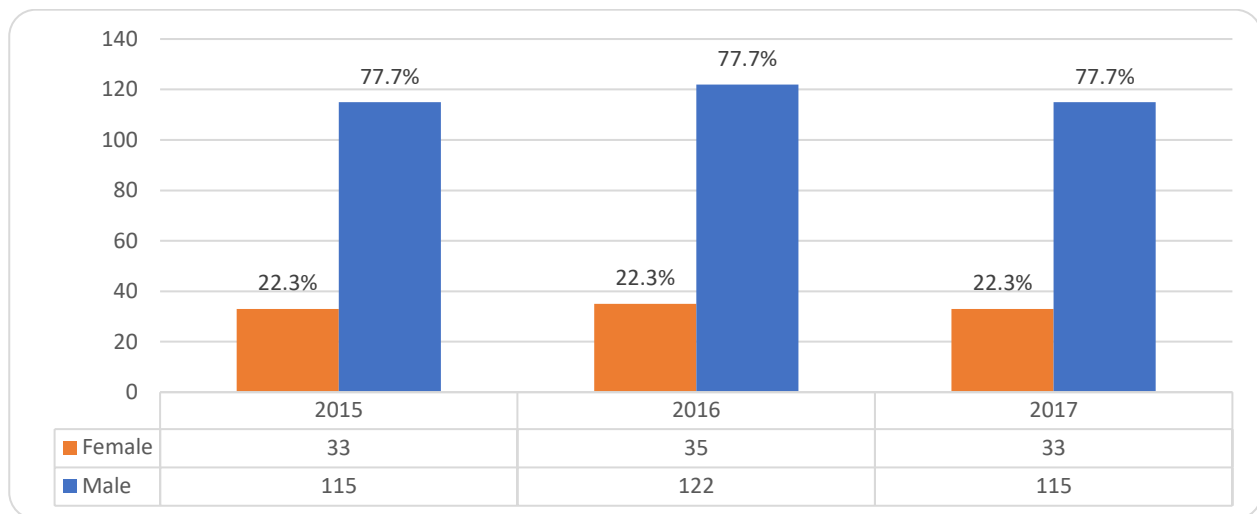


Figure 23: Senior lecturer by gender, 2015 – 2017

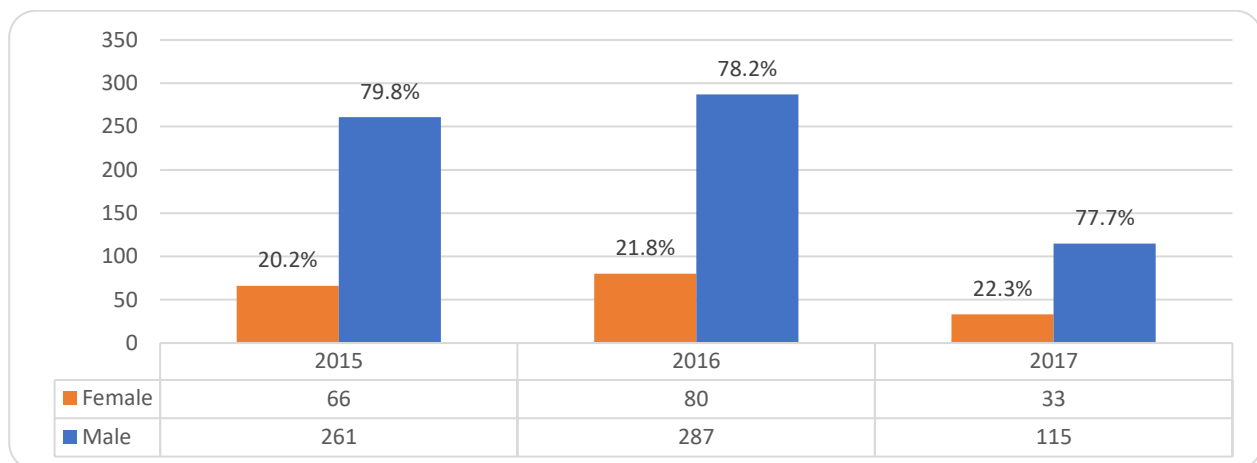
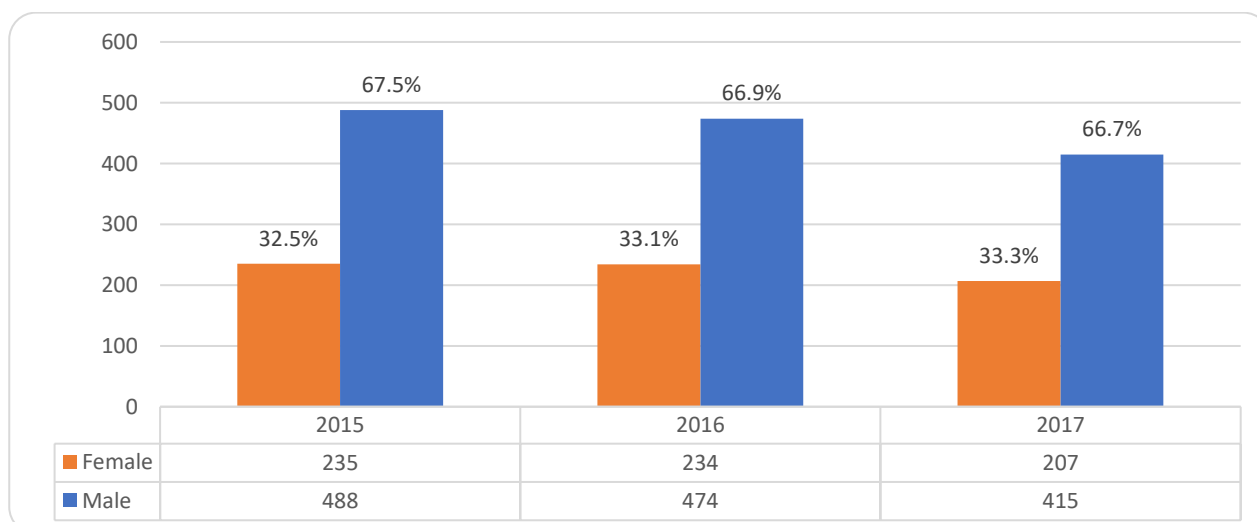


Figure 24: Lecturer & other by gender, 2015 – 2017



UNIVERSITY OF IBADAN

Figure 1: UG vs. PG enrolment, 2015 - 2017

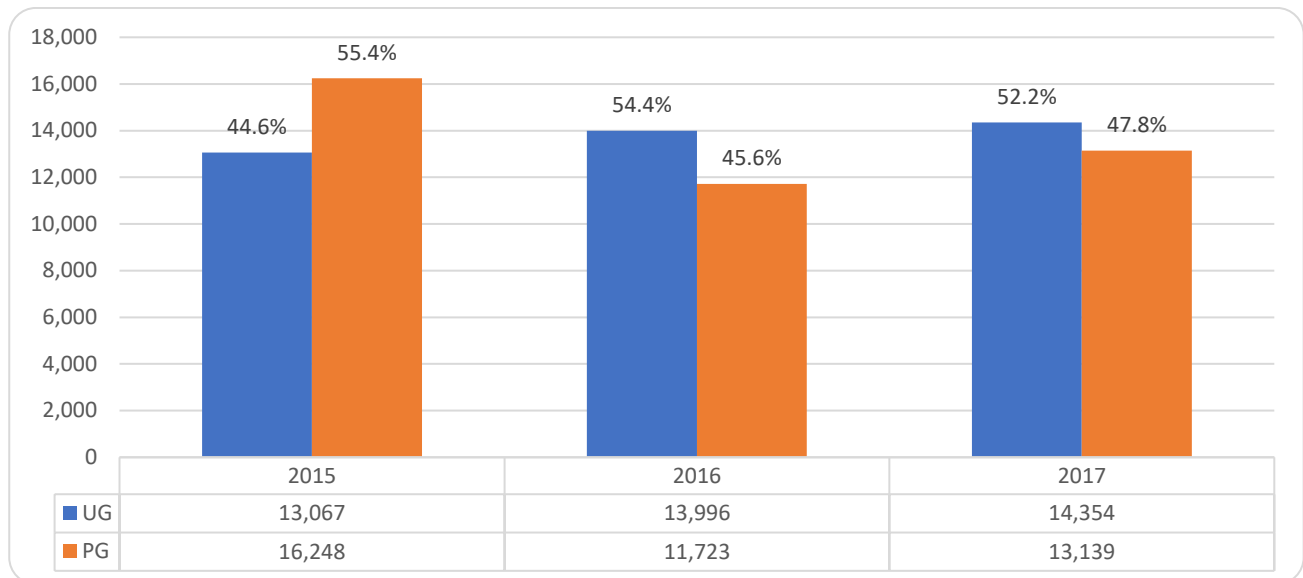


Table 1: Percentage of UG and PG enrolment by study field

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|-------------|--------------|--------------|-------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 7.2% | 9.5% | 16.7% | 7.9% | 7.8% | 15.7% | 8.0% | 8.3% | 16.3% |
| Engineering and Technology | 4.5% | 4.7% | 9.2% | 5.5% | 4.0% | 9.5% | 5.3% | 4.4% | 9.7% |
| Medical and Health sciences | 8.0% | 8.5% | 16.5% | 10.0% | 7.0% | 17.0% | 9.8% | 7.5% | 17.3% |
| Agricultural sciences | 5.9% | 7.1% | 13.1% | 7.6% | 5.5% | 13.1% | 7.5% | 5.5% | 13.0% |
| Social sciences | 11.8% | 15.1% | 26.8% | 14.9% | 13.3% | 28.2% | 13.8% | 13.8% | 27.6% |
| Humanities | 6.1% | 9.2% | 15.3% | 7.5% | 7.2% | 14.7% | 6.8% | 7.4% | 14.2% |
| Business, Economics and Management Studies | 1.0% | 1.4% | 2.4% | 1.1% | 0.8% | 1.9% | 1.1% | 0.9% | 1.9% |
| Total | 44.6% | 55.4% | 100% | 54.4% | 45.6% | 100% | 52.2% | 47.8% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 - 2017

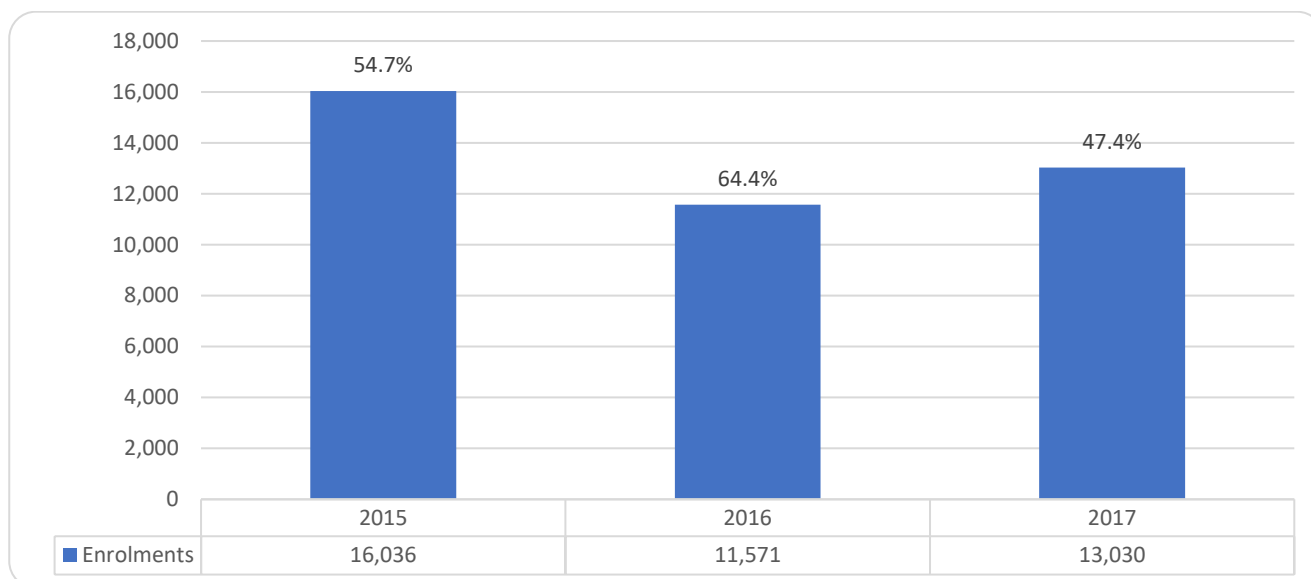


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 9.4% | 7.8% | 8.2% |
| Engineering and Technology | 4.7% | 4.0% | 4.2% |
| Medical and Health sciences | 8.4% | 6.8% | 7.2% |
| Agricultural sciences | 7.1% | 5.5% | 5.7% |
| Social sciences | 14.6% | 13.0% | 13.7% |
| Humanities | 9.2% | 7.2% | 7.6% |
| Business, Economics and Management Studies | 1.4% | 0.8% | 0.8% |
| Total | 54.7% | 45.0% | 47.4% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

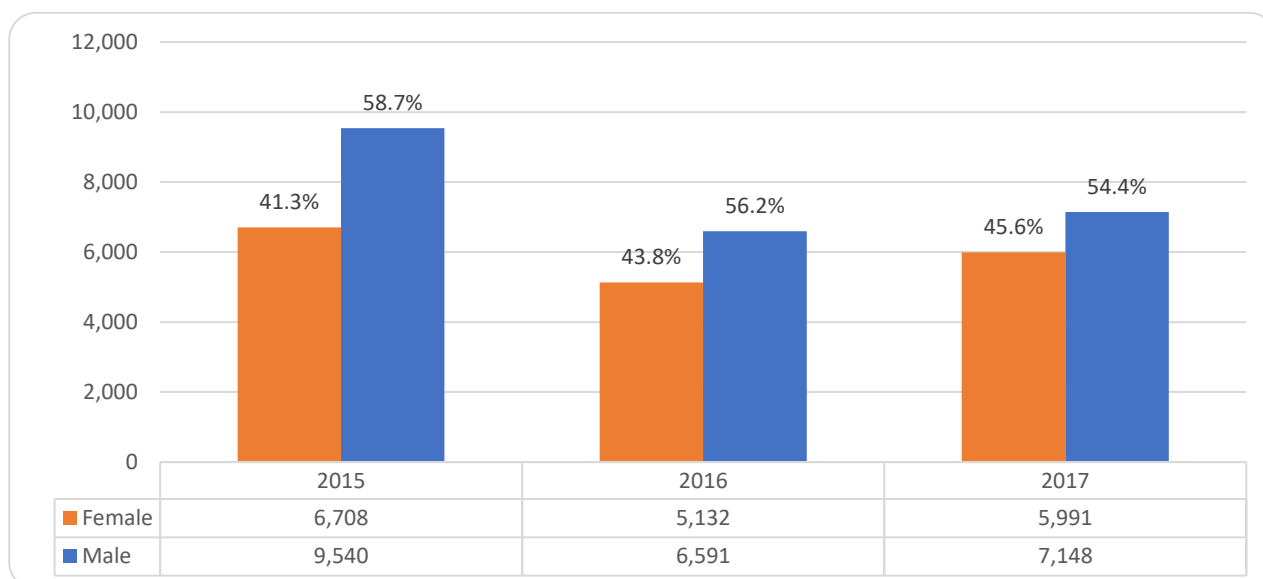


Figure 4: Master’s enrolments by gender, 2015 – 2017

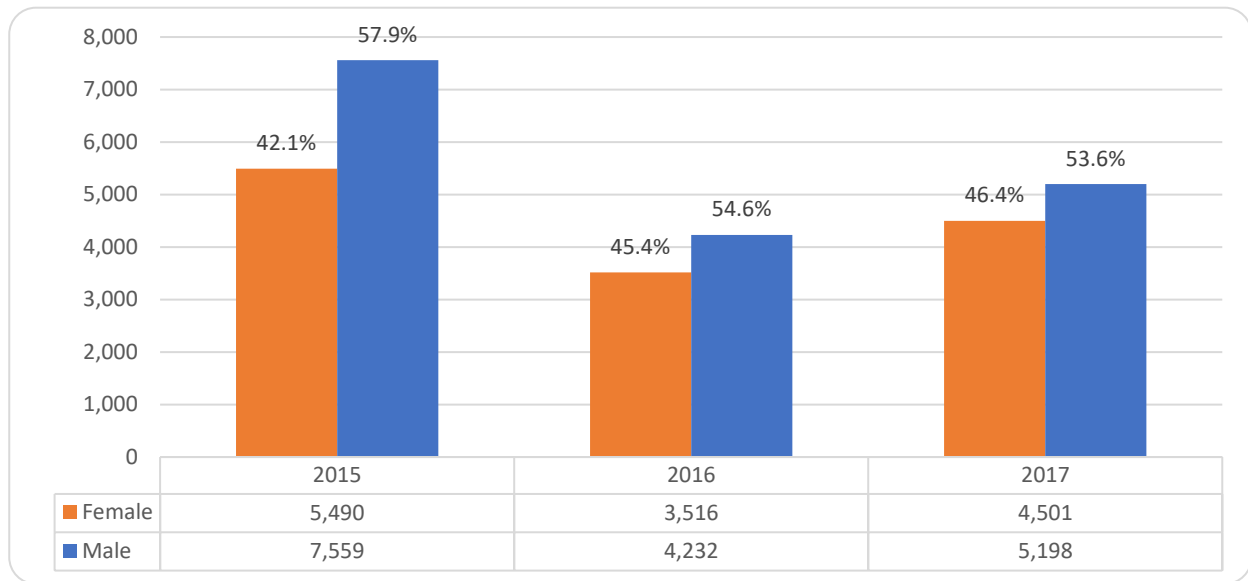


Figure 5: Doctoral enrolments by gender, 2015 – 2017

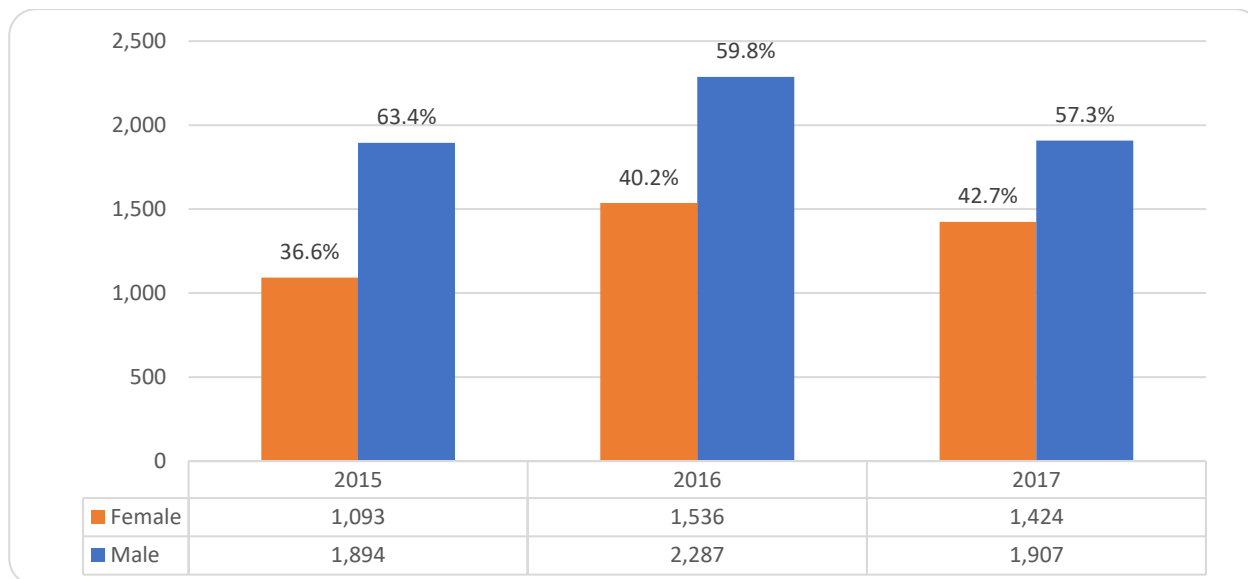


Figure 6: UG vs. PG graduates, 2015 – 2017

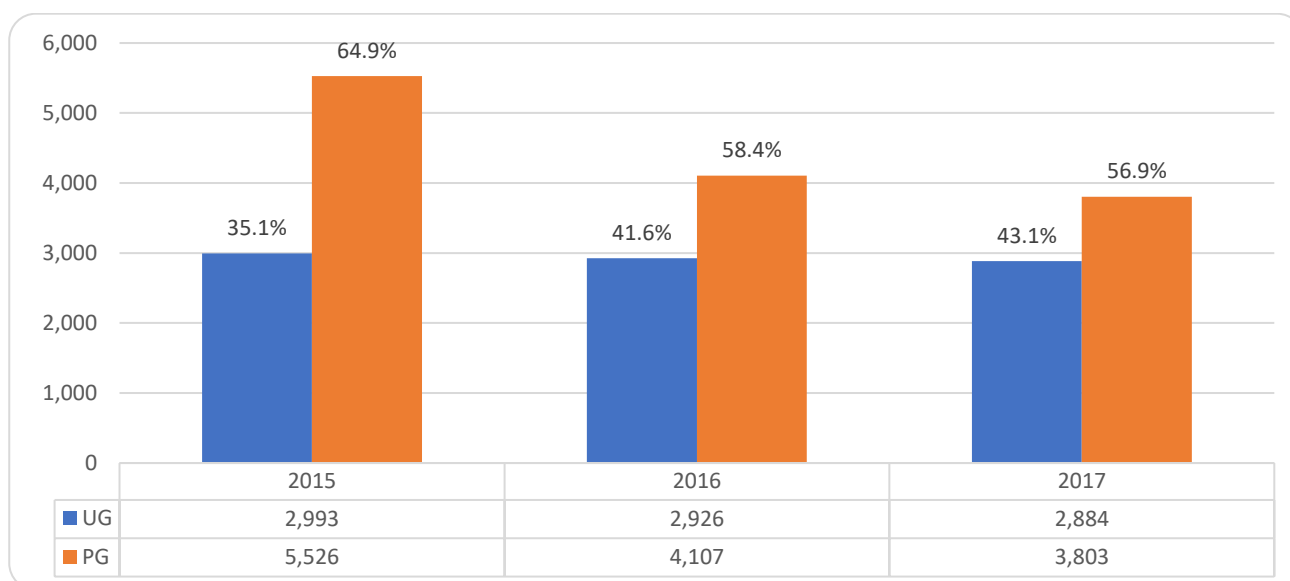


Table 3: UG and PG graduates as a % of total graduates, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|-------------|--------------|--------------|-------------|--------------|--------------|-------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 6.8% | 9.2% | 16.1% | 7.7% | 9.0% | 16.7% | 6.7% | 9.9% | 16.6% |
| Engineering and Technology | 3.1% | 4.8% | 7.9% | 3.8% | 6.0% | 9.8% | 4.2% | 5.1% | 9.3% |
| Medical and Health sciences | 4.6% | 9.7% | 14.3% | 6.1% | 9.4% | 15.5% | 7.0% | 10.0% | 17.1% |
| Agricultural sciences | 3.7% | 9.6% | 13.4% | 5.2% | 4.9% | 10.1% | 5.3% | 6.0% | 11.3% |
| Social sciences | 10.2% | 21.4% | 31.6% | 12.2% | 17.0% | 29.2% | 12.3% | 20.5% | 32.8% |
| Humanities | 5.9% | 8.2% | 14.1% | 5.1% | 10.8% | 16.0% | 6.7% | 4.3% | 11.0% |
| Business, Economics and Management Studies | 0.8% | 2.0% | 2.7% | 1.5% | 1.3% | 2.8% | 0.8% | 1.1% | 1.9% |
| Total | 35.1% | 64.9% | 100% | 41.6% | 58.4% | 100% | 43.1% | 56.9% | 100% |

Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

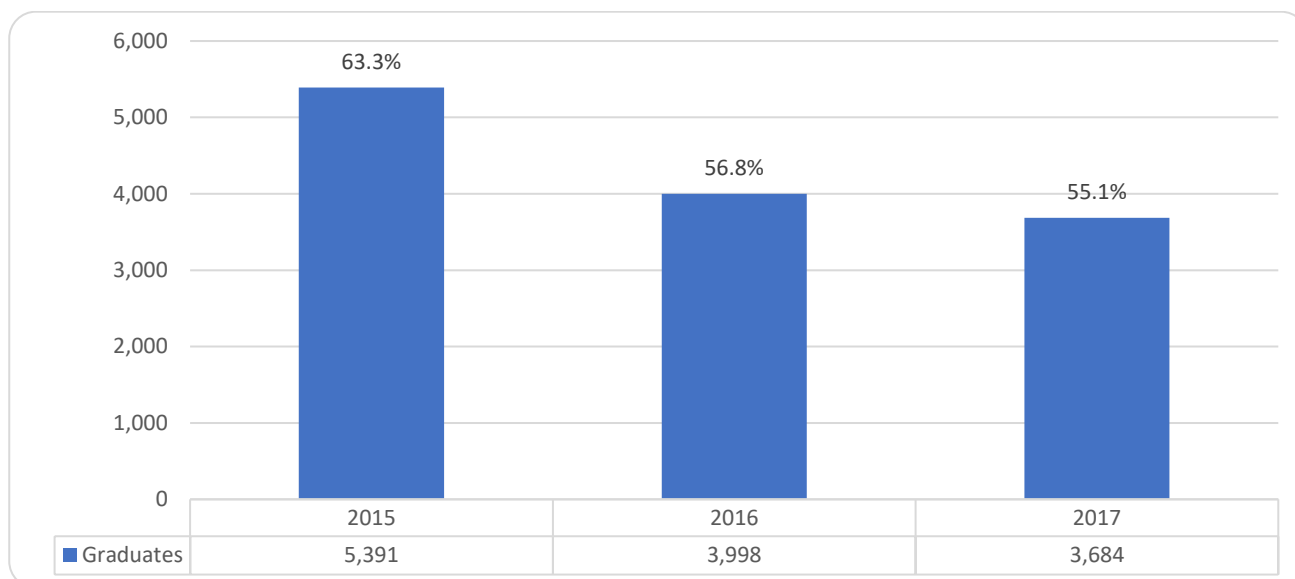


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 9.0% | 8.5% | 9.8% |
| Engineering and Technology | 4.8% | 6.0% | 5.1% |
| Medical and Health sciences | 9.1% | 9.1% | 9.6% |
| Agricultural sciences | 9.5% | 4.9% | 5.9% |
| Social sciences | 21.0% | 16.2% | 19.3% |
| Humanities | 8.0% | 10.8% | 4.3% |
| Business, Economics and Management Studies | 2.0% | 1.3% | 1.1% |
| Total | 63.3% | 56.8% | 55.1% |

Figure 8: PhD graduates as a % of total graduates

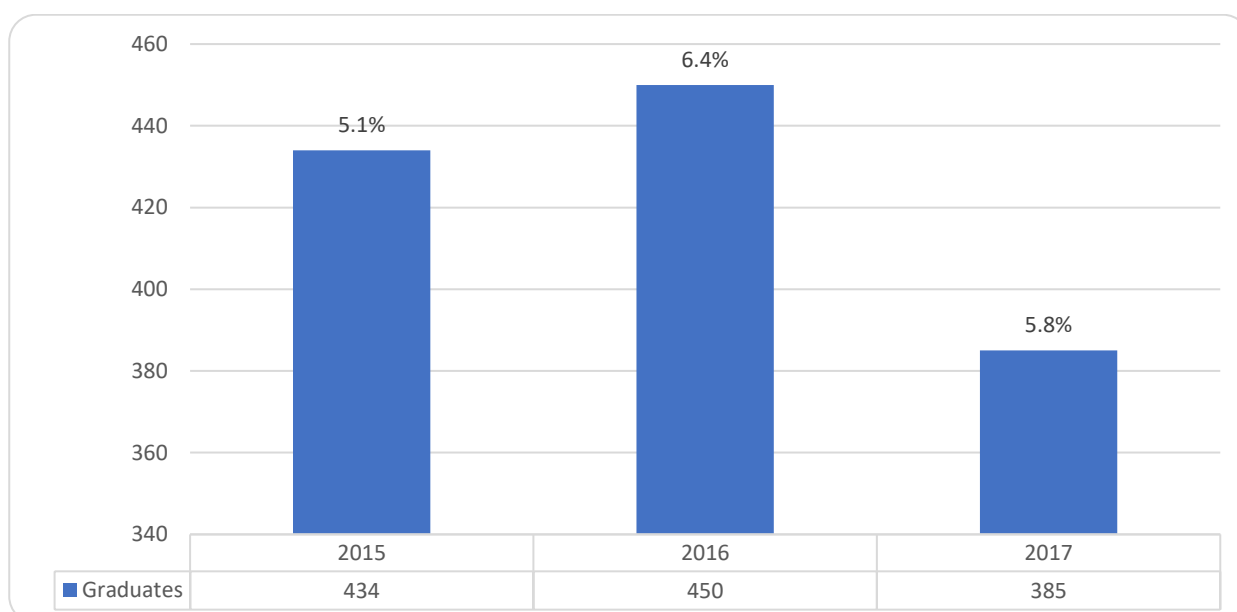


Figure 9: Postgraduate graduates by gender, 2015 – 2017

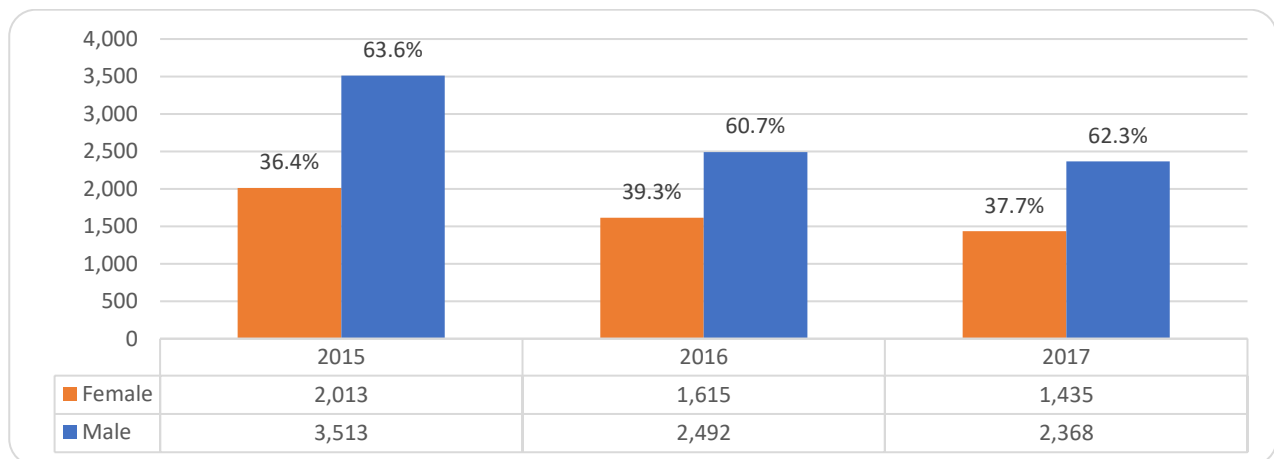


Figure 10: Master's graduates by gender, 2015 – 2017

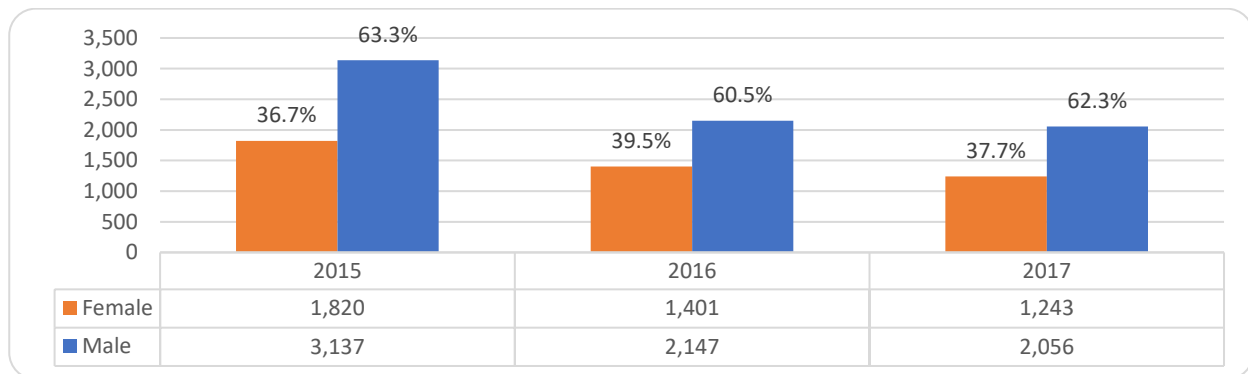


Figure 11: Doctoral graduates by gender, 2015 – 2017

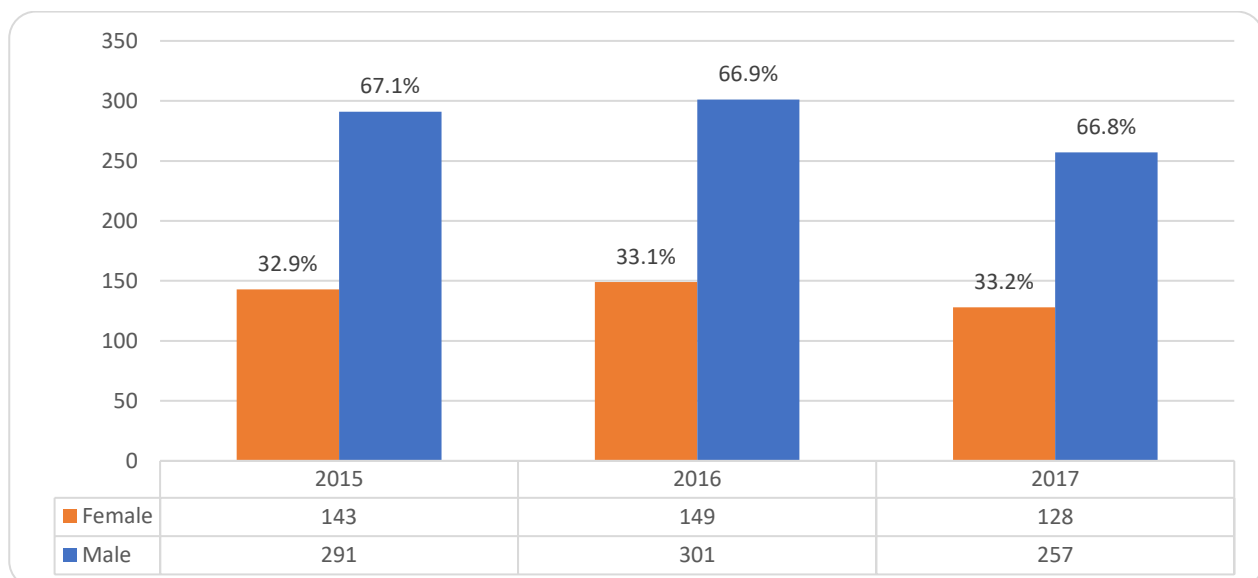
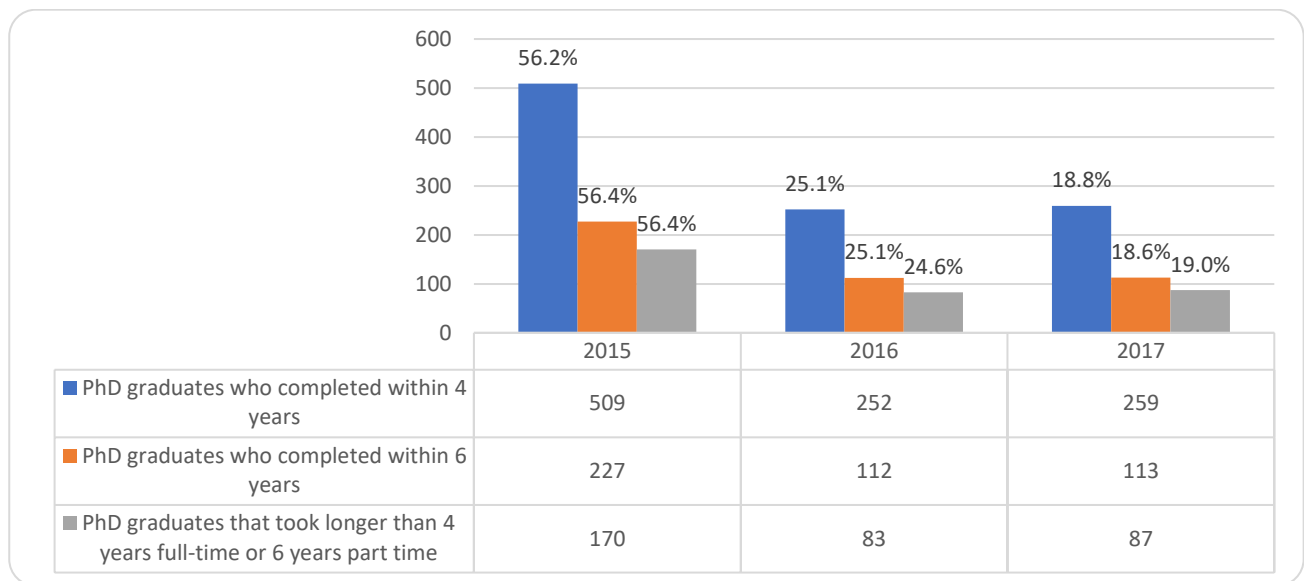


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

NB: Ibadan does not have OTHER (e.g. contract, part-time) academic staff

Figure 13: Permanent academic staff by gender as a % of all academic staff, 2015 – 2017

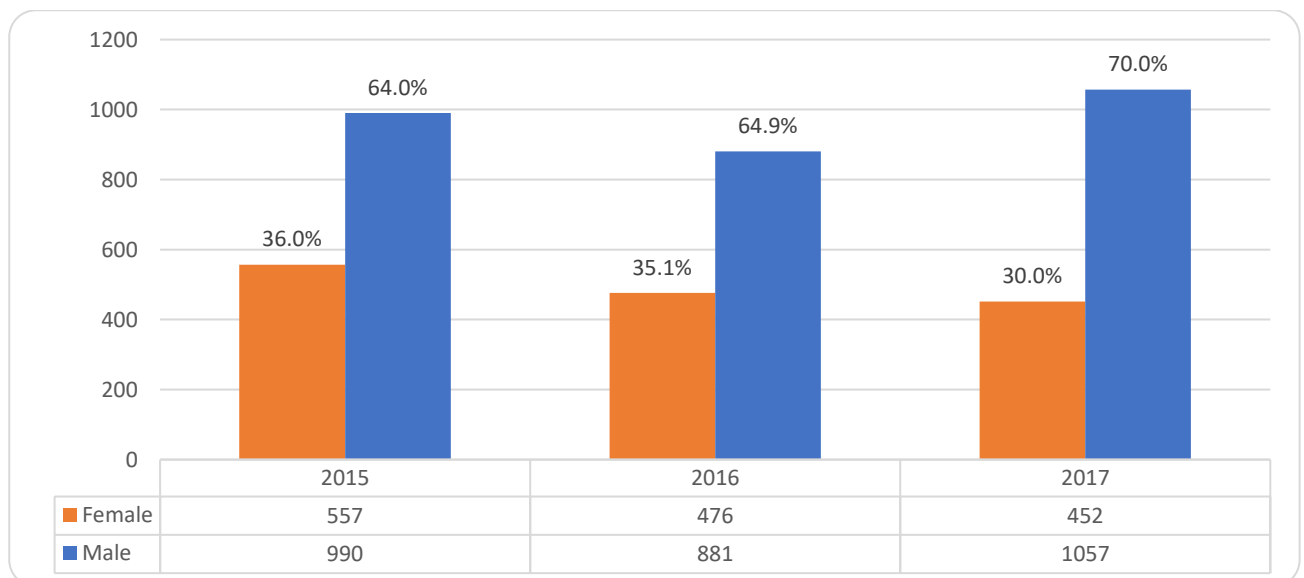


Figure 14: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 – 2017

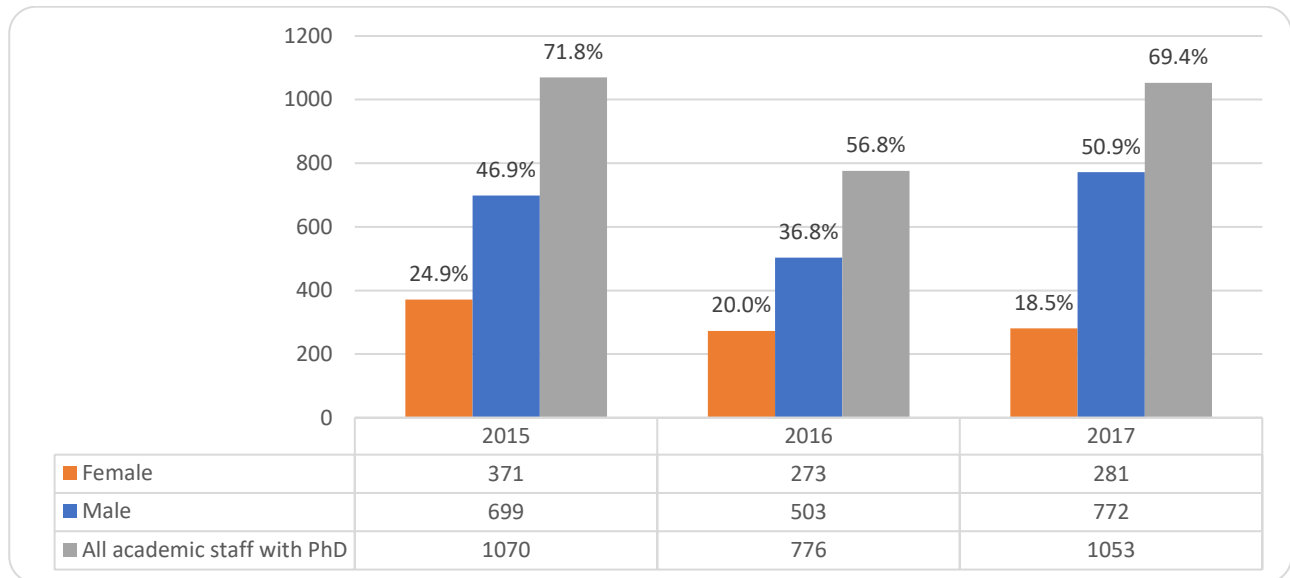


Figure 15: Professors as a % of all permanent academic staff, 2015 – 2017

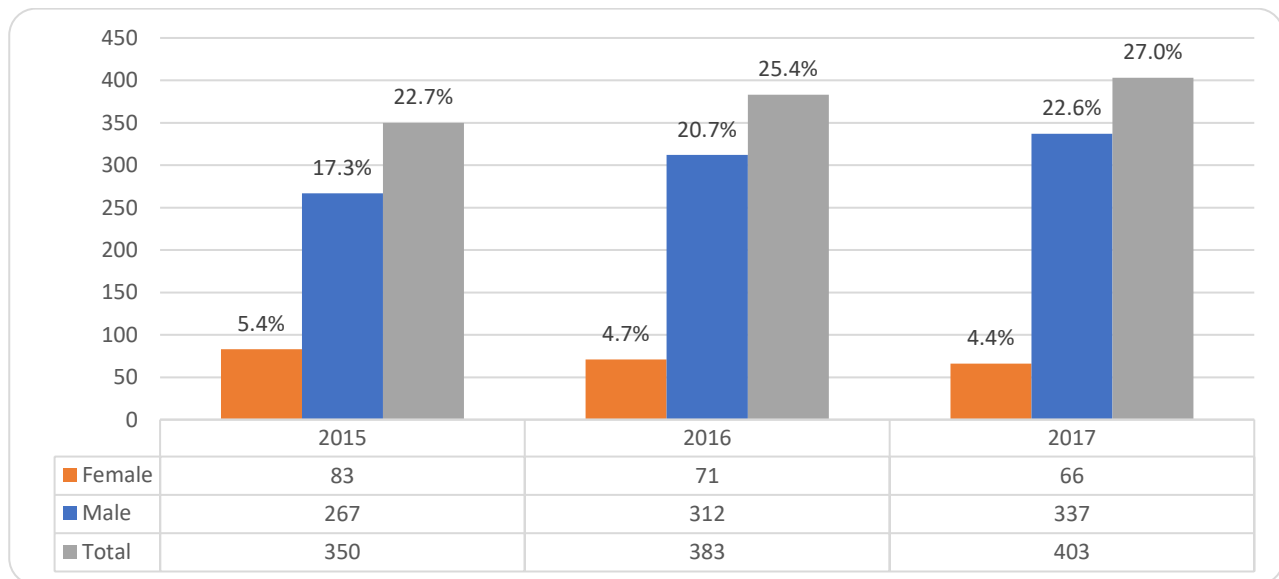


Figure 16: Associate professors as a % of all permanent academic staff, 2015 – 2017

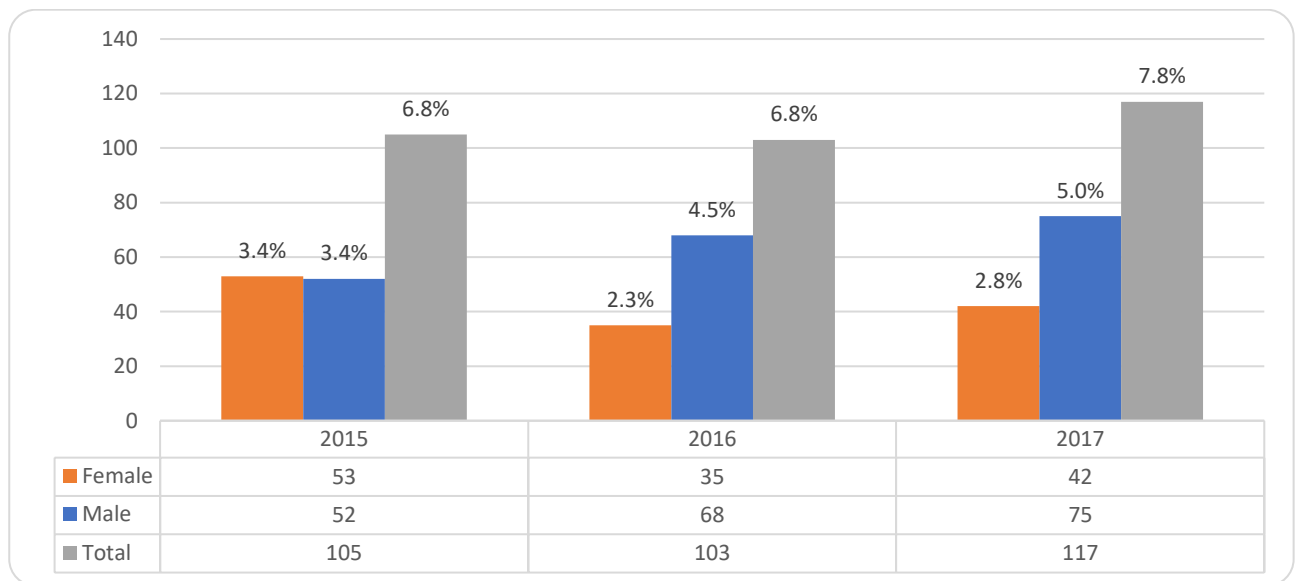


Figure 17: Senior lecturers as a % of all permanent academic staff, 2015 – 2017

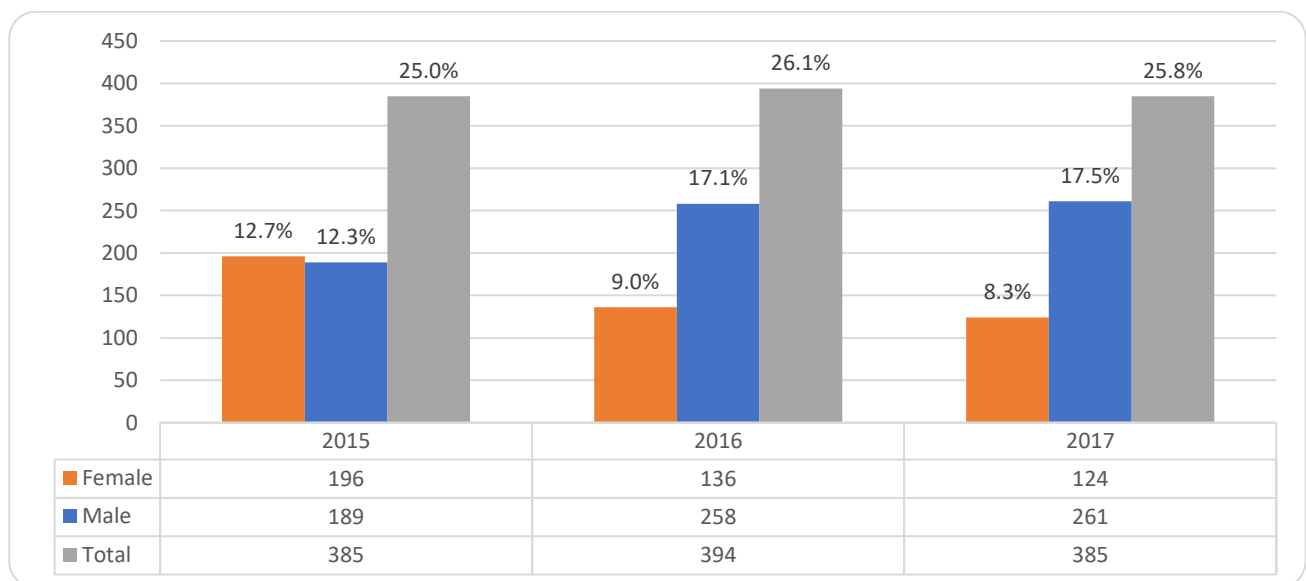


Figure 18: Lecturers and others as a % of all permanent academic staff, 2015 – 2017

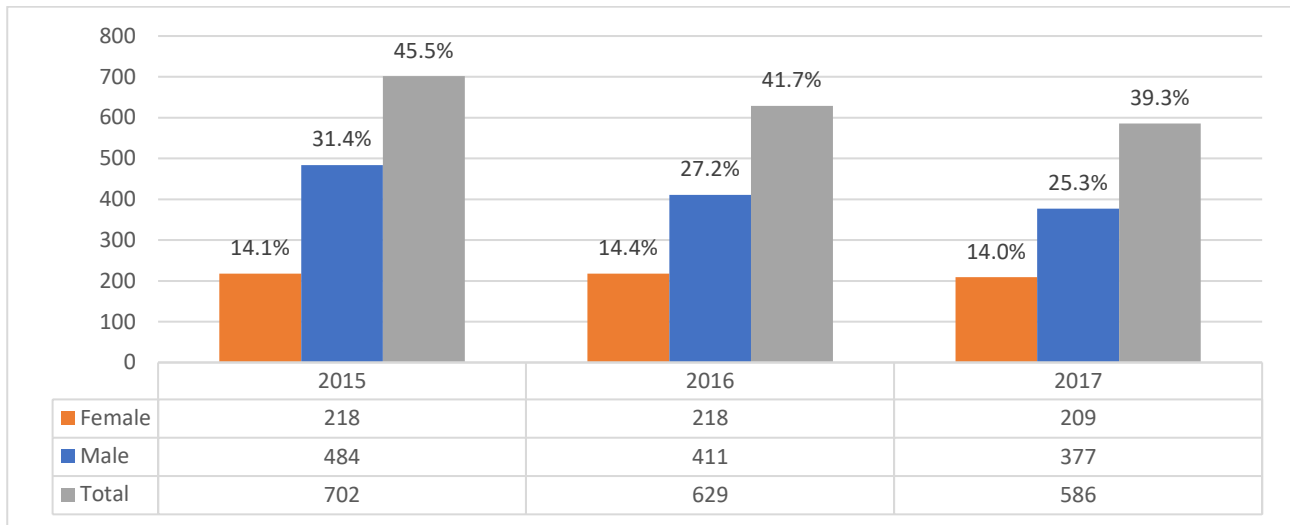


Figure 19: Professors by gender, 2015 – 2017

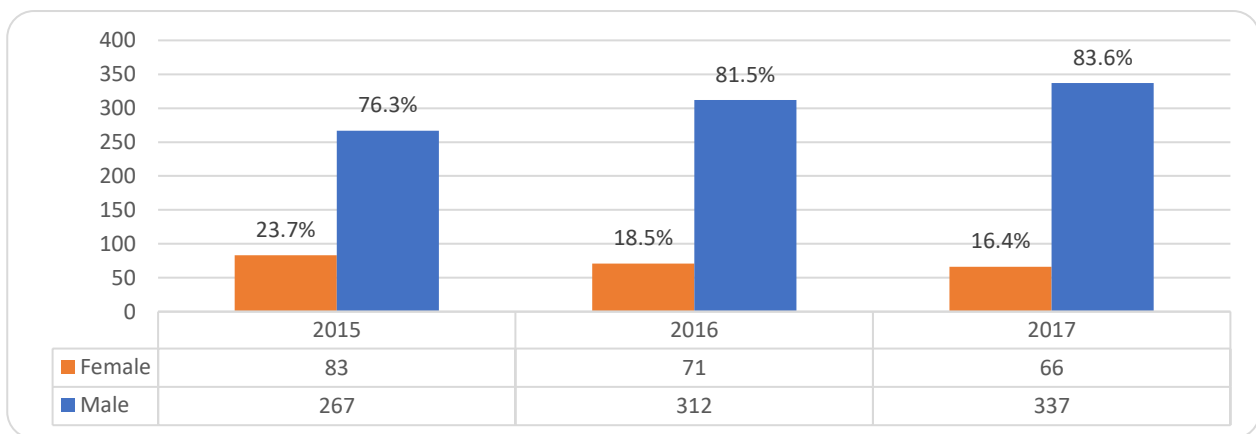


Figure 20: Associate professors by gender, 2015 – 2017

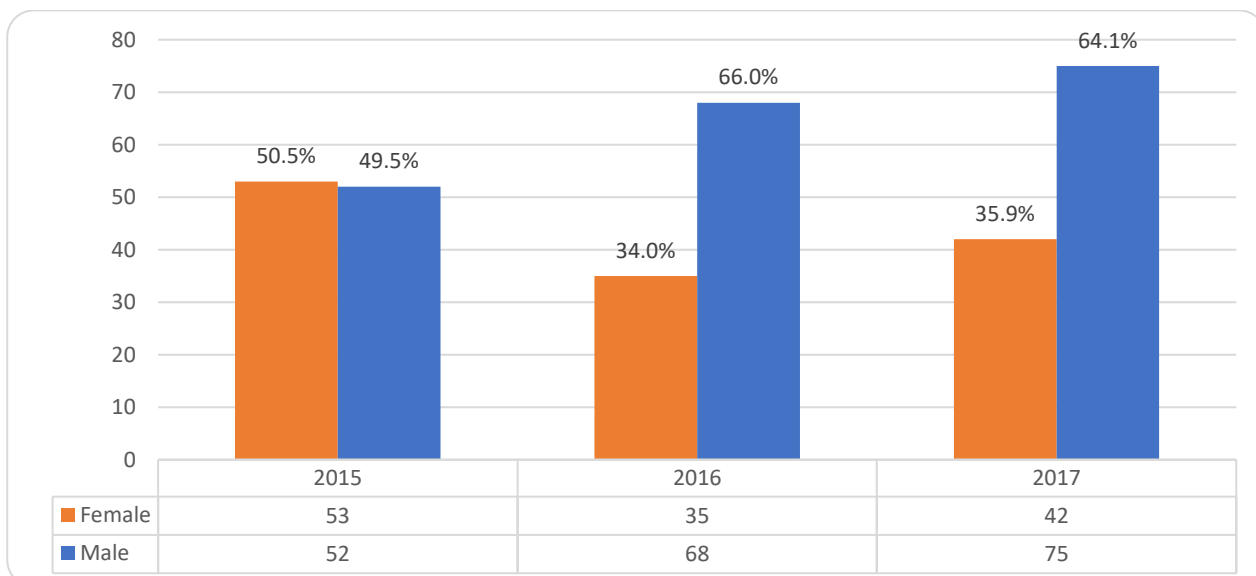


Figure 21: Senior lecturers by gender, 2015 – 2017

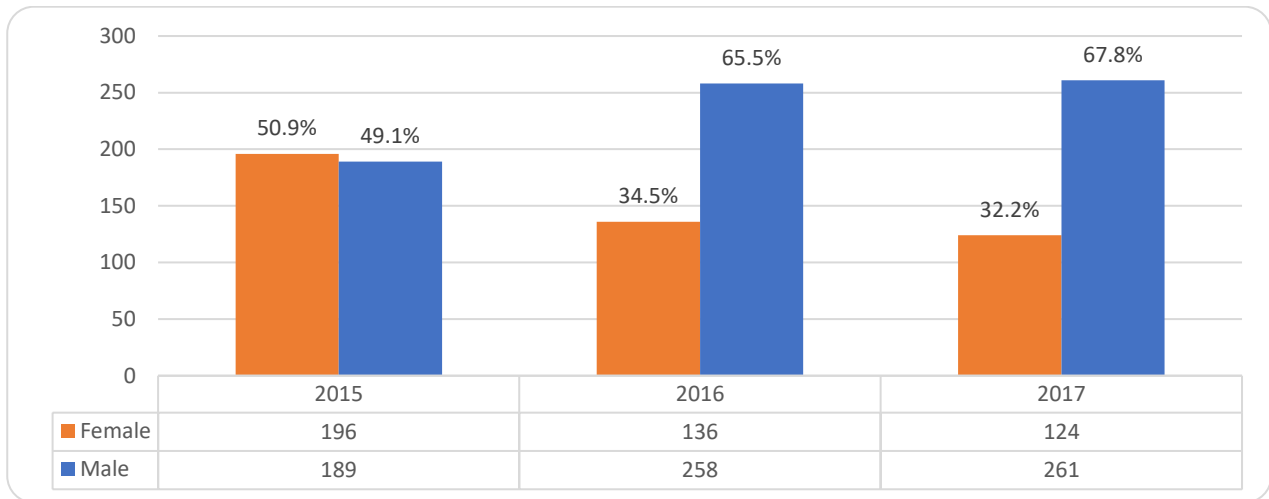


Figure 22: Lecturers & other by gender, 2015 – 2017

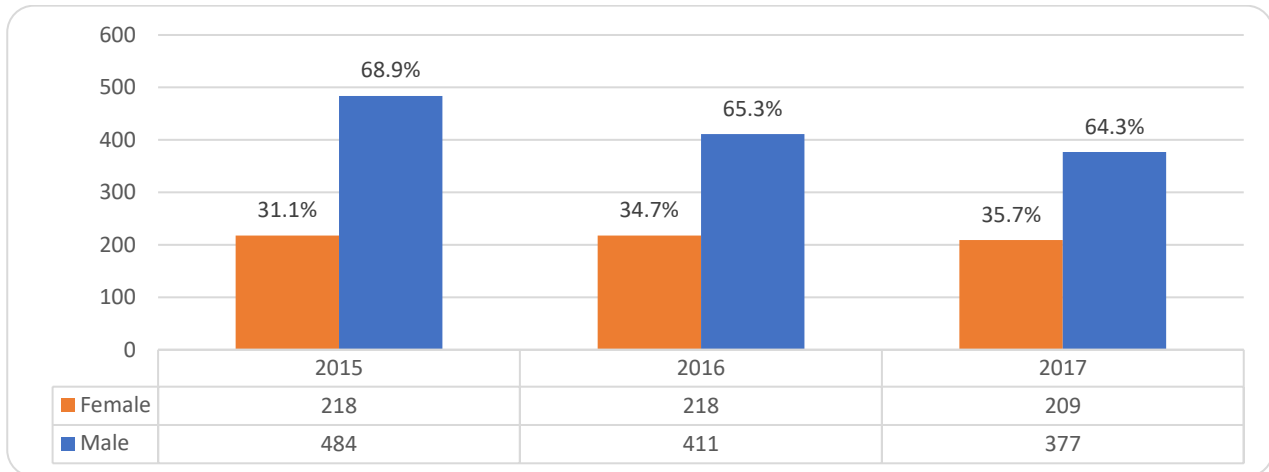
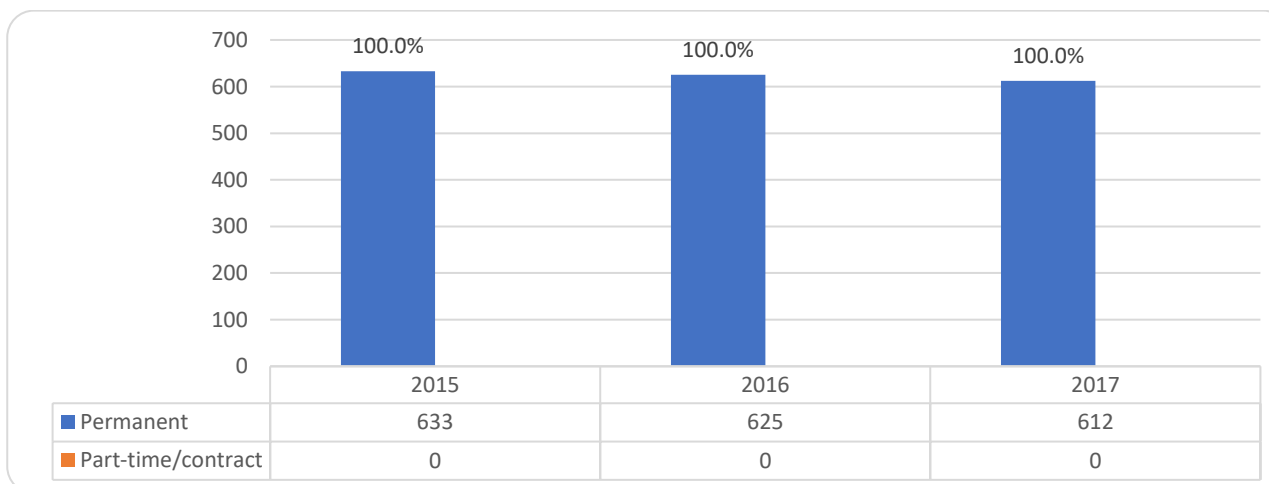


Figure 23: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017



Note: Ibadan did not provide data on postdoctoral research fellows.

Figure 24: Research income by source, 2015 – 2017 (US \$)

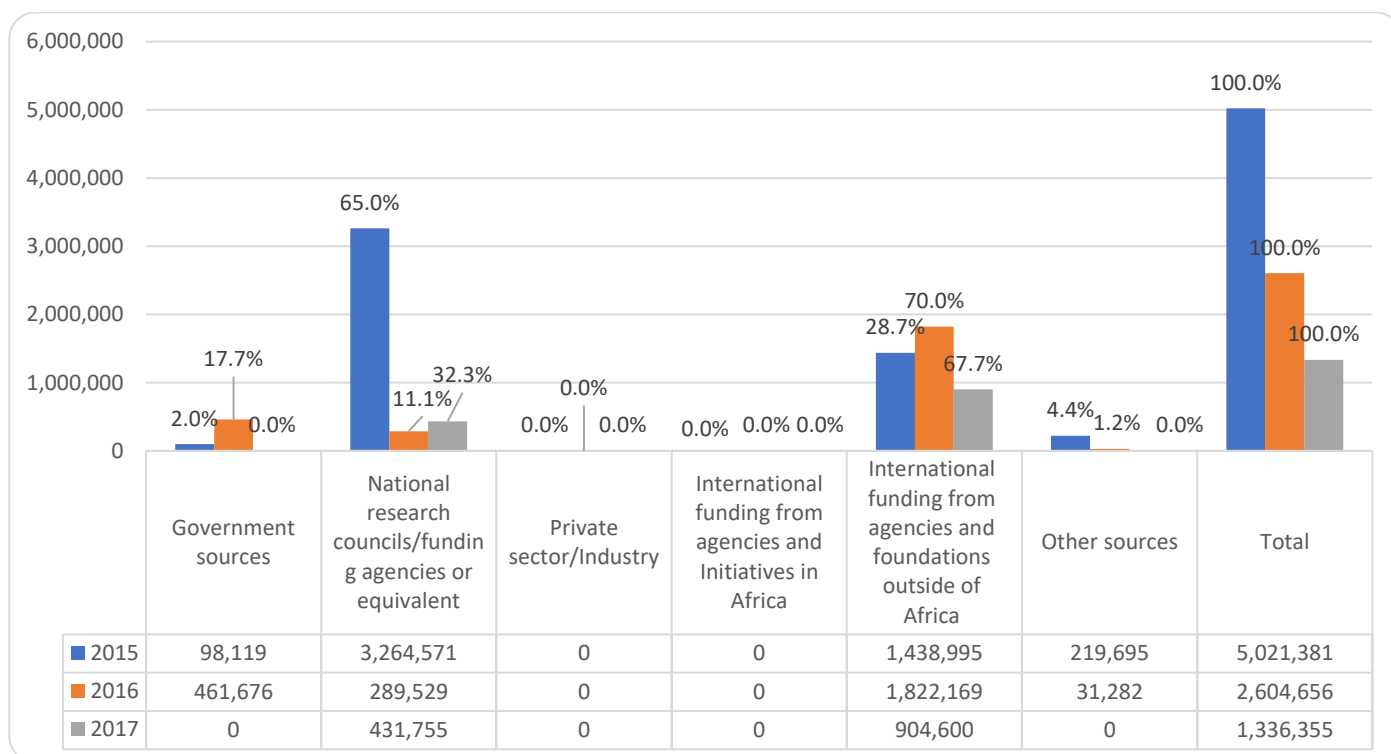


Table 5: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | 7 | 2 | 5 |

Figure 1: UG vs. PG enrolment, 2015 – 2017

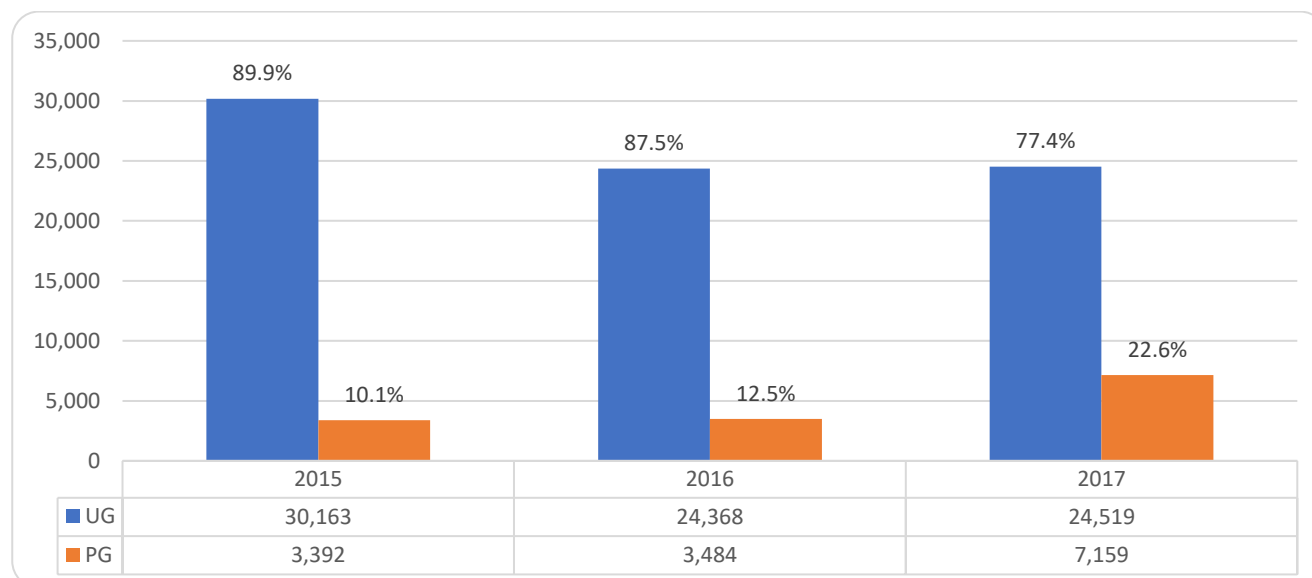


Table 1: UG vs. PG graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural Science | 15.6% | 1.8% | 17.5% | 17.6% | 2.5% | 20.1% | 15.7% | 3.9% | 19.6% |
| Engineering and Technology | 15.5% | 1.6% | 17.1% | 17.9% | 2.1% | 20.0% | 15.6% | 3.7% | 19.3% |
| Medical and Health Sciences | 18.7% | 0.8% | 19.5% | 3.5% | 0.8% | 4.3% | 1.8% | 1.3% | 3.0% |
| Social Sciences | 20.7% | 3.0% | 23.6% | 22.9% | 3.5% | 26.4% | 21.4% | 6.5% | 27.9% |
| Humanities | 5.8% | 1.1% | 6.9% | 9.8% | 1.4% | 11.1% | 9.1% | 1.9% | 11.0% |
| Business, Economics and Management Studies | 13.6% | 1.9% | 15.5% | 15.8% | 2.2% | 18.0% | 13.9% | 5.3% | 19.1% |
| Total | 89.9% | 10.1% | 100.0% | 87.5% | 12.5% | 100.0% | 77.4% | 22.6% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments. 2015 - 2017

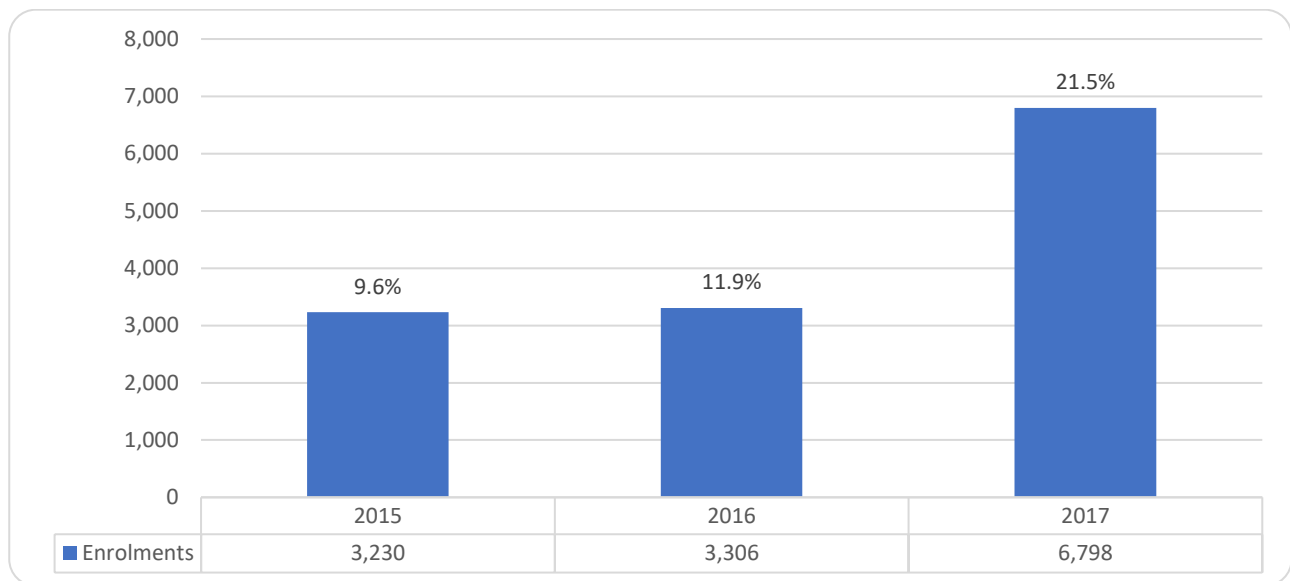


Table 2: M & D enrolments per study field as a % of total enrolments (UG and PG). 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|-------------|--------------|--------------|
| Natural Science | 1.7% | 2.1% | 3.6% |
| Engineering and Technology | 1.5% | 1.8% | 3.5% |
| Medical and Health Sciences | 0.8% | 0.8% | 1.3% |
| Social Sciences | 2.9% | 3.5% | 6.3% |
| Humanities | 1.0% | 1.3% | 1.9% |
| Business, Economics and Management Studies | 1.7% | 2.0% | 4.9% |
| Total | 9.6% | 11.6% | 21.5% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

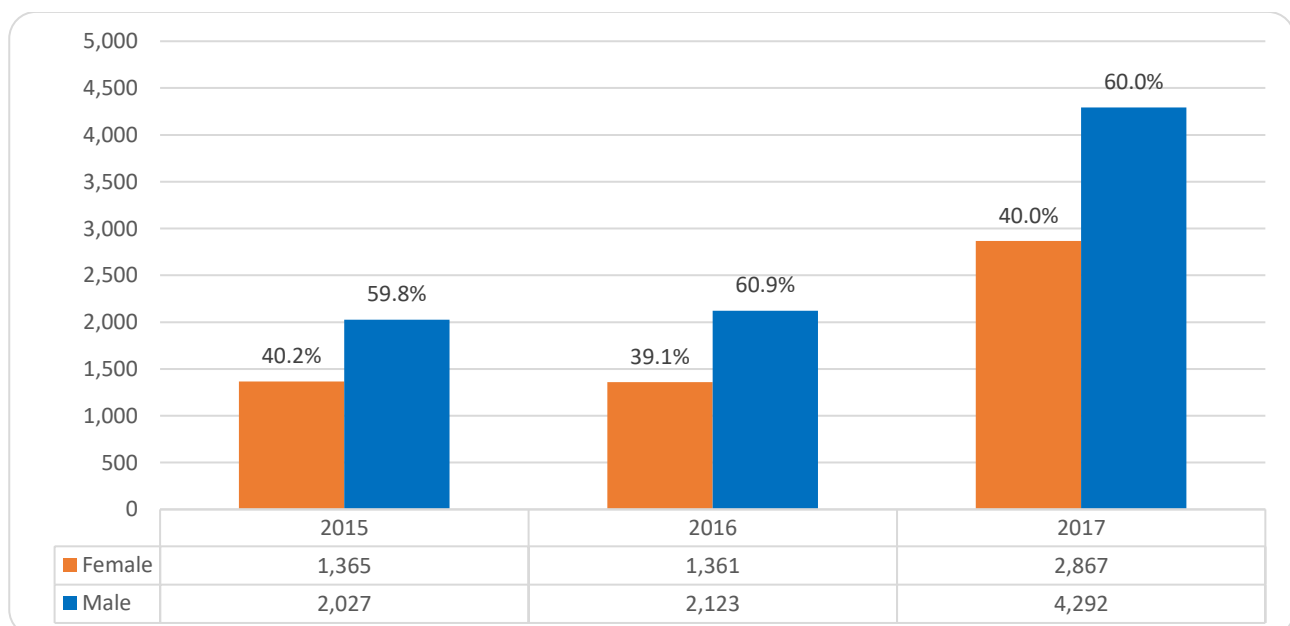


Figure 4: Master’s enrolments by gender, 2015 – 2017

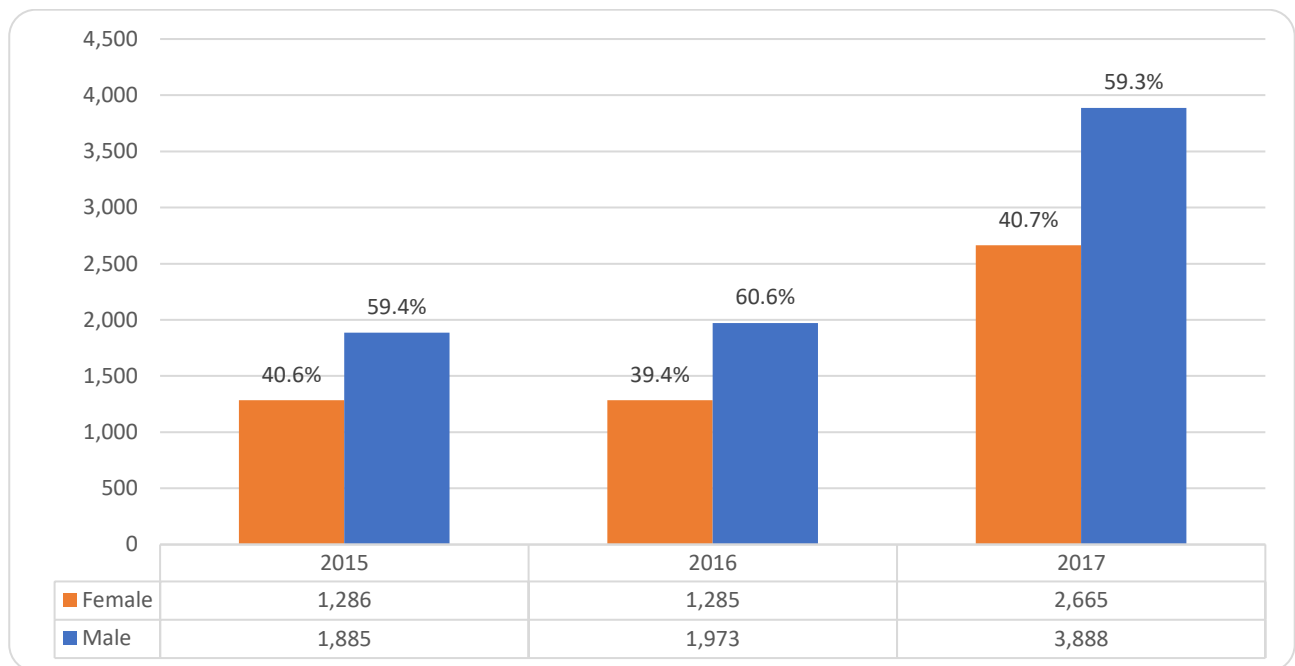
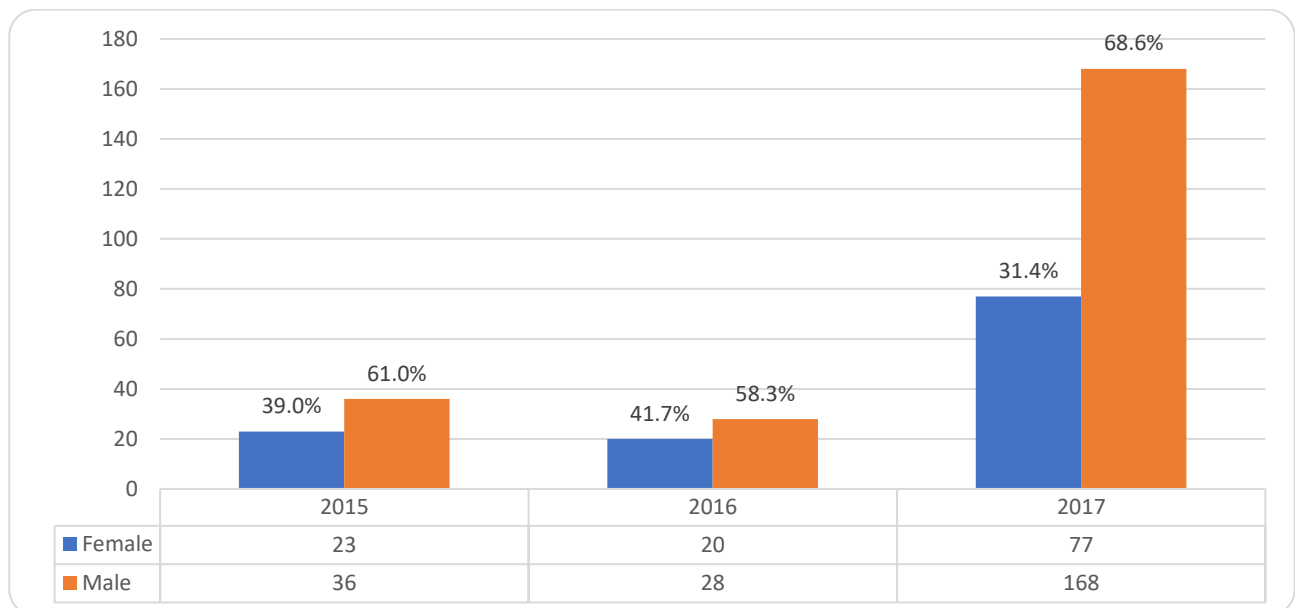


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG and PG graduates as a % of total graduates, 2015 – 2017

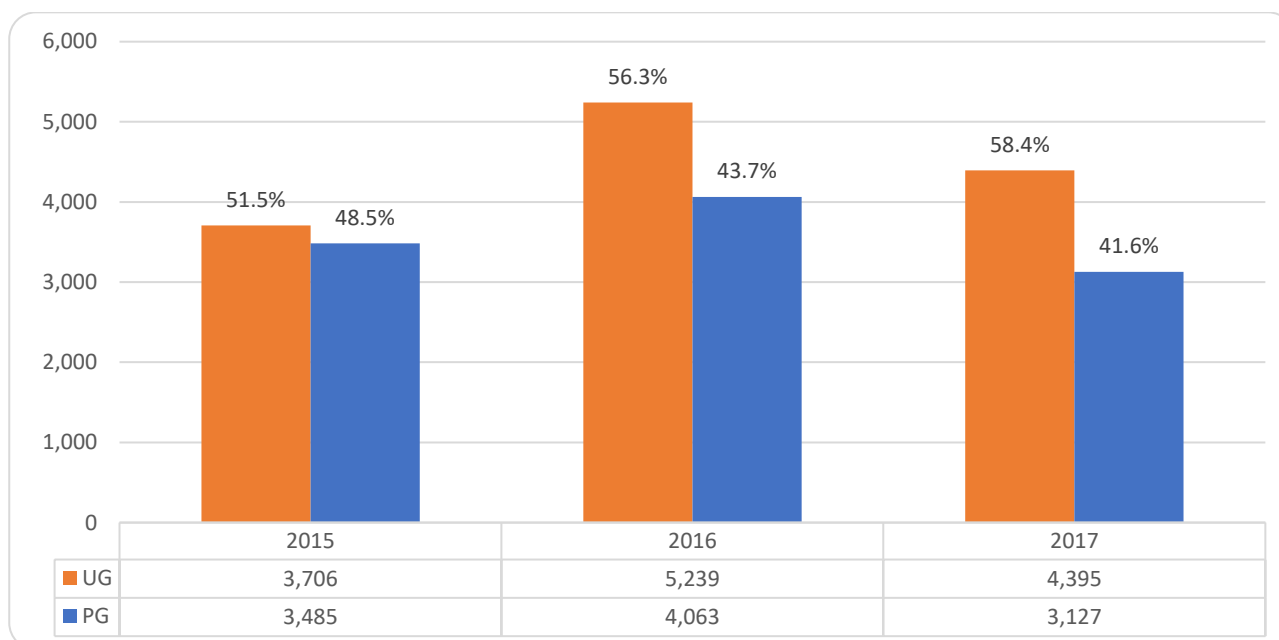


Table 3: UG and PG graduates as a % of total graduates, 2015 - 2017

| Broad field of the study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural Science | 9.9% | 8.6% | 18.5% | 11.2% | 7.4% | 18.6% | 11.6% | 9.1% | 20.7% |
| Engineering and Technology | 7.9% | 6.5% | 14.4% | 9.0% | 6.4% | 15.4% | 9.6% | 6.0% | 15.6% |
| Medical and Health Sciences | 4.0% | 3.6% | 7.5% | 4.7% | 2.5% | 7.2% | 4.8% | 3.0% | 7.8% |
| Social Sciences | 14.0% | 13.8% | 27.8% | 15.8% | 10.7% | 26.5% | 16.1% | 11.3% | 27.4% |
| Humanities | 4.0% | 2.7% | 6.8% | 5.5% | 6.1% | 11.6% | 5.7% | 3.3% | 9.1% |
| Business, Economics and Management Studies | 11.8% | 13.2% | 25.0% | 10.2% | 10.5% | 20.7% | 10.6% | 8.9% | 19.5% |
| Total | 51.5% | 48.5% | 100.0% | 56.3% | 43.7% | 100.0% | 58.4% | 41.6% | 100.0% |

Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

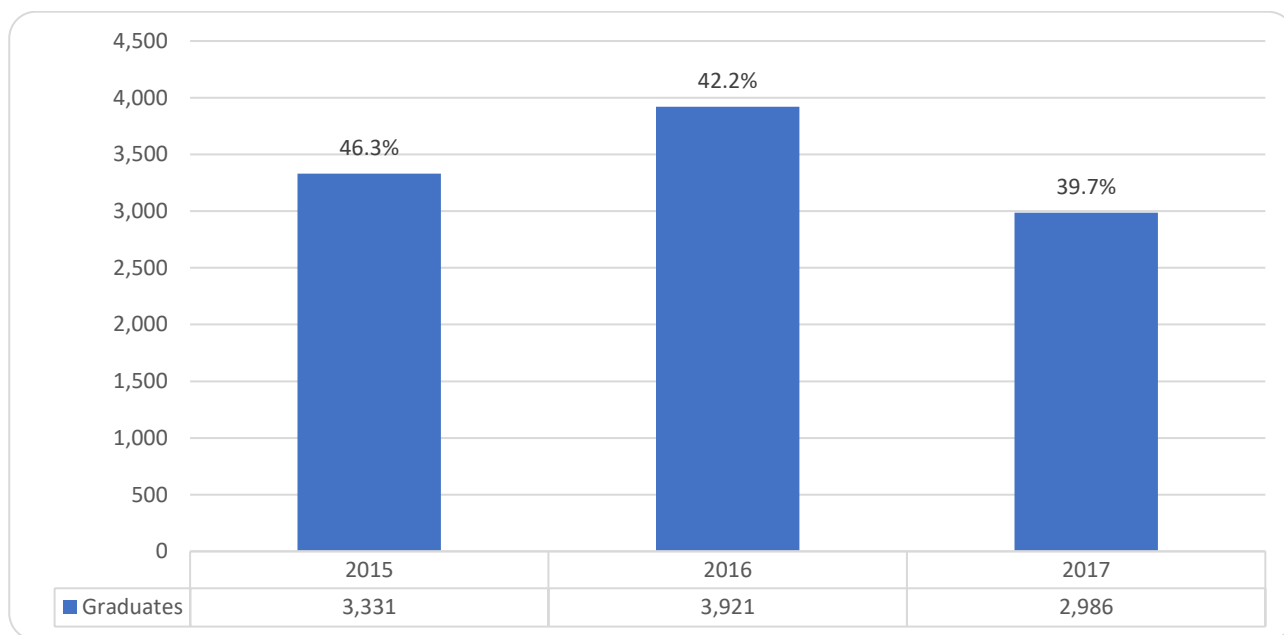


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 - 2017

| Broad field of the study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural Science | 44.1% | 38.7% | 41.7% |
| Engineering and Technology | 41.6% | 37.7% | 34.0% |
| Medical and Health Sciences | 47.2% | 35.1% | 38.4% |
| Social Sciences | 47.9% | 39.4% | 40.2% |
| Humanities | 39.5% | 52.0% | 35.8% |
| Business, Economics and Management Studies | 50.5% | 49.1% | 43.8% |
| Total | 46.3% | 42.2% | 39.7% |

Figure 9: Postgraduate graduates by gender, 2015 – 2017

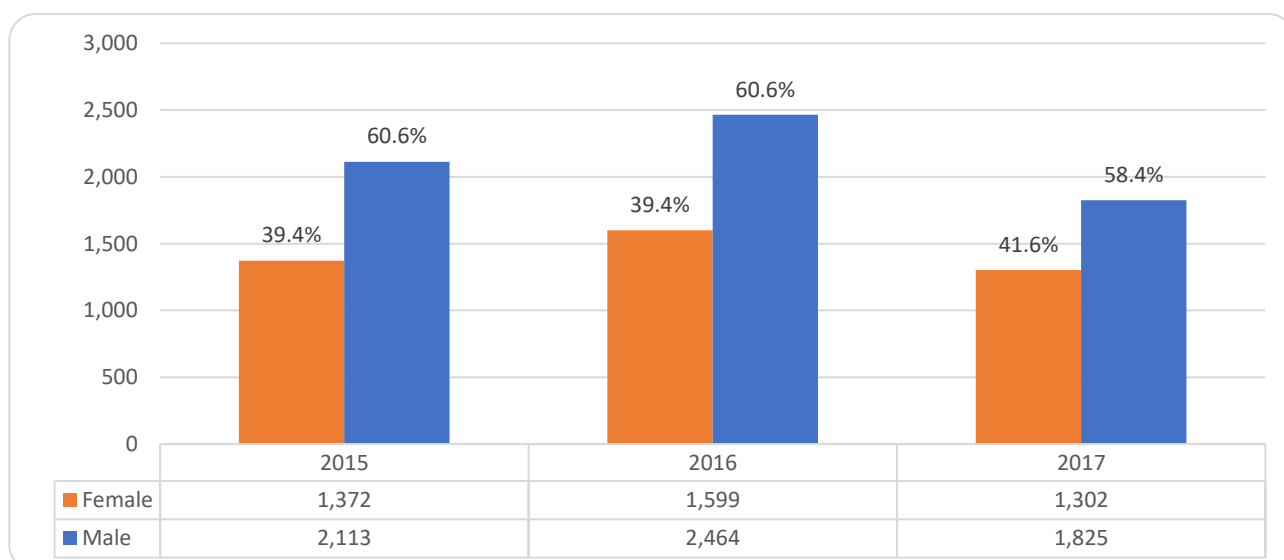


Figure 10: Master’s graduates by gender, 2015 – 2017

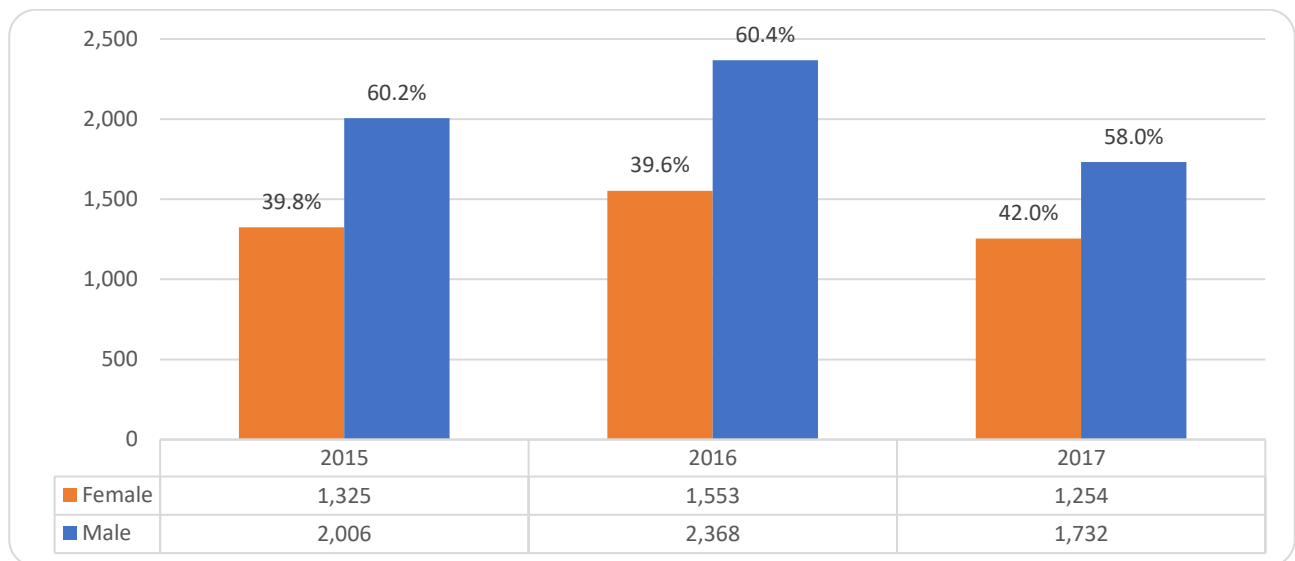


Figure 11: Doctoral graduates by gender, 2015 – 2017

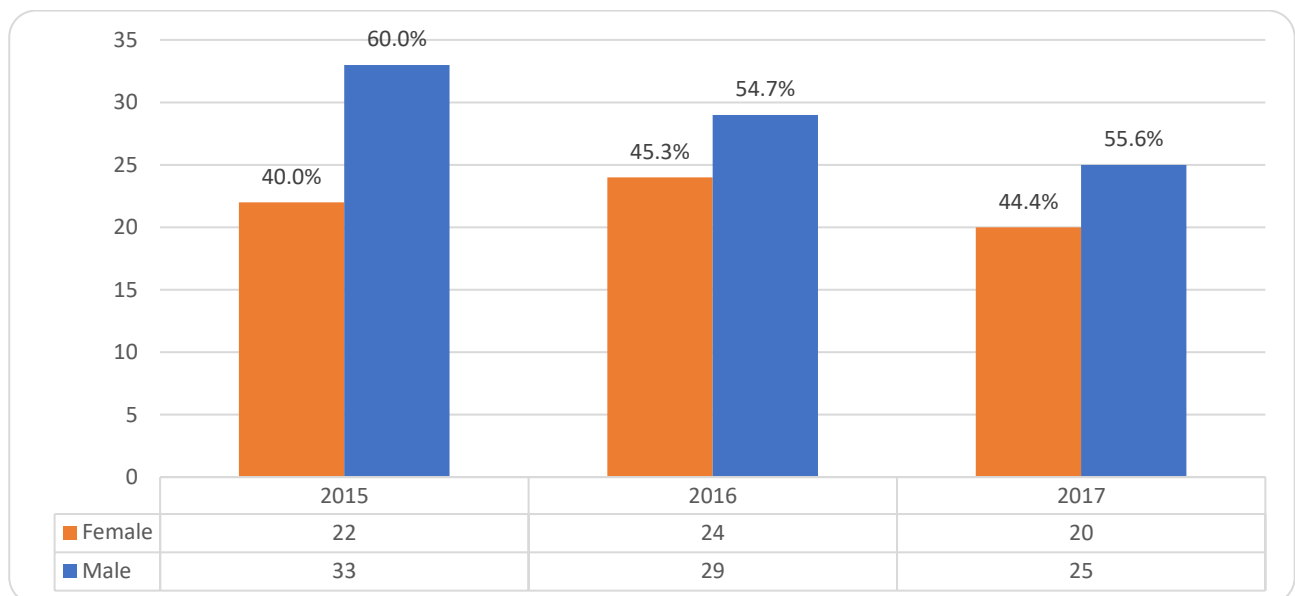
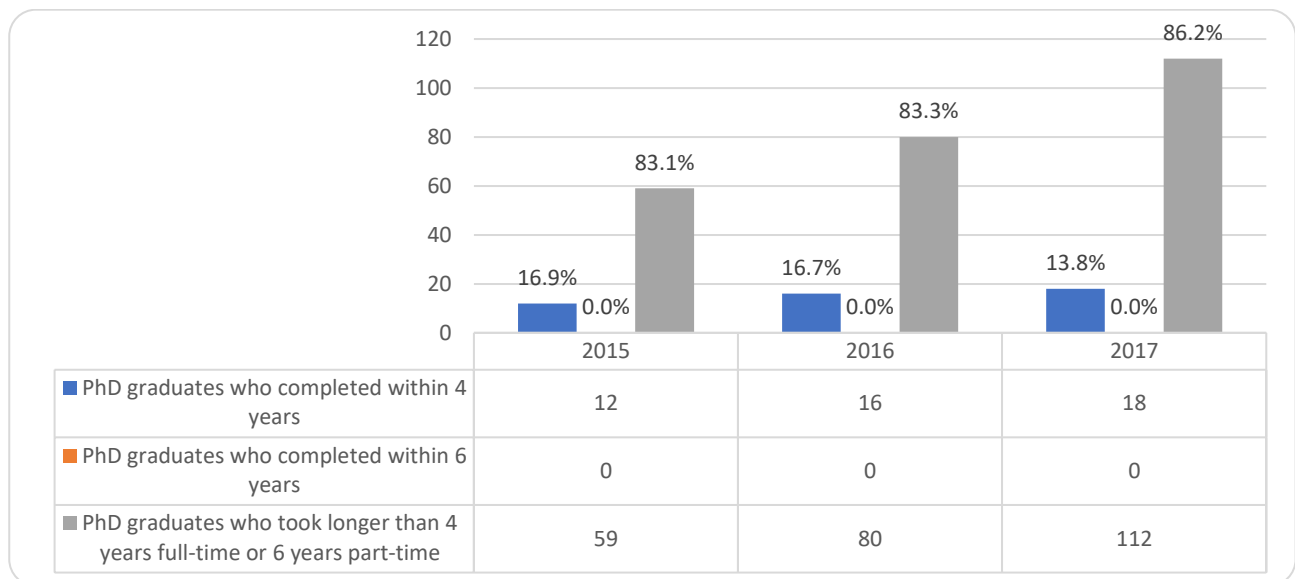


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

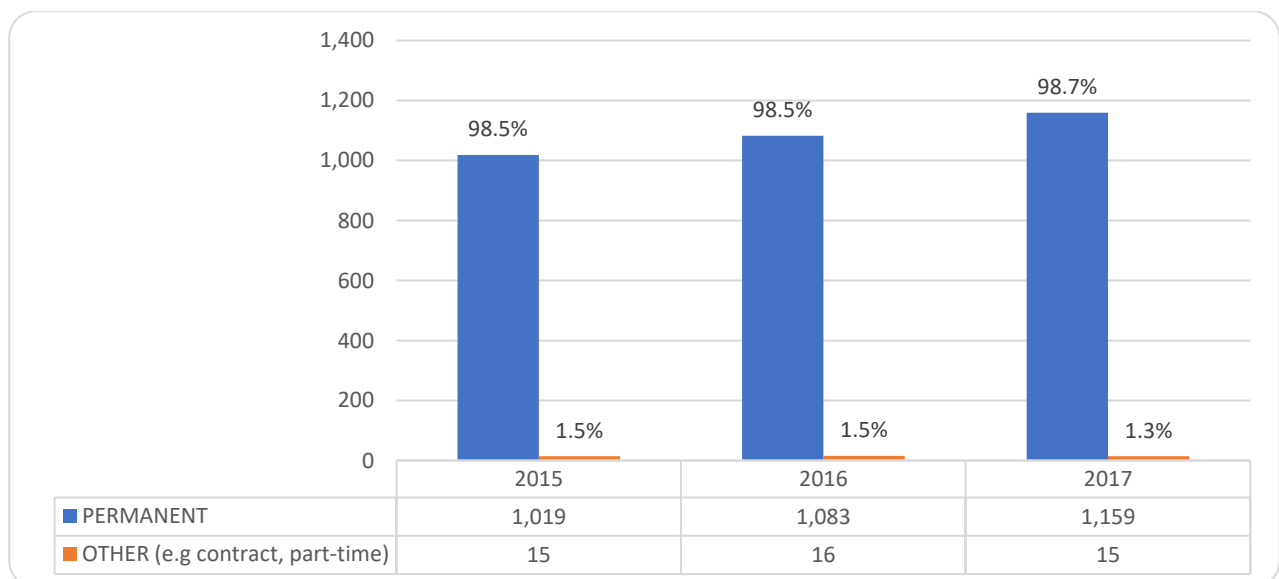


Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 - 2017

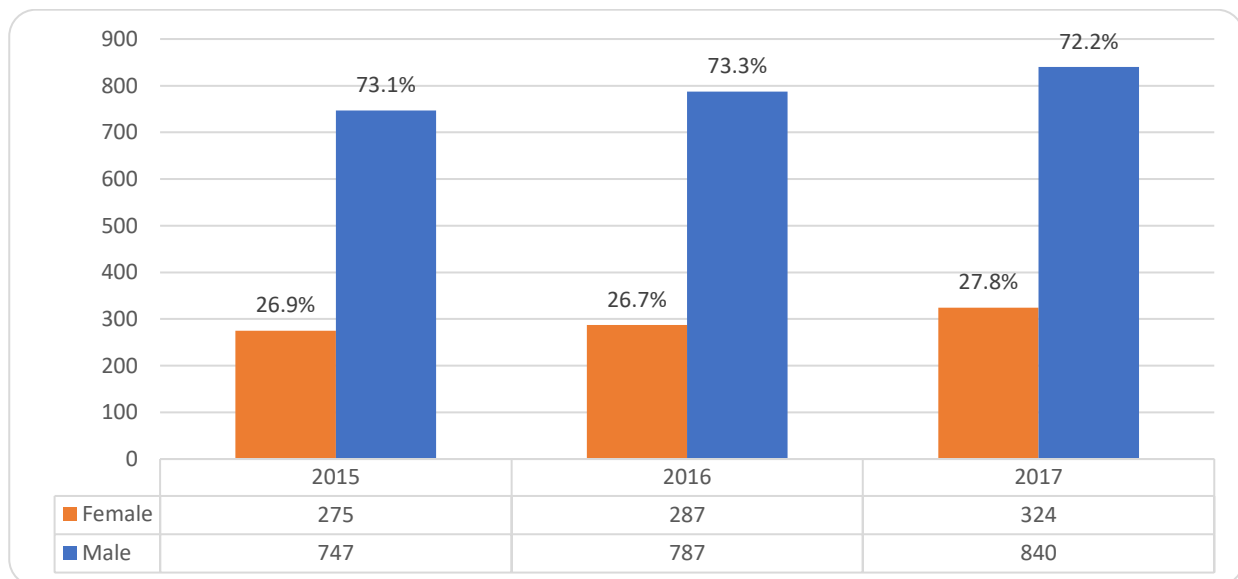


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 - 2017

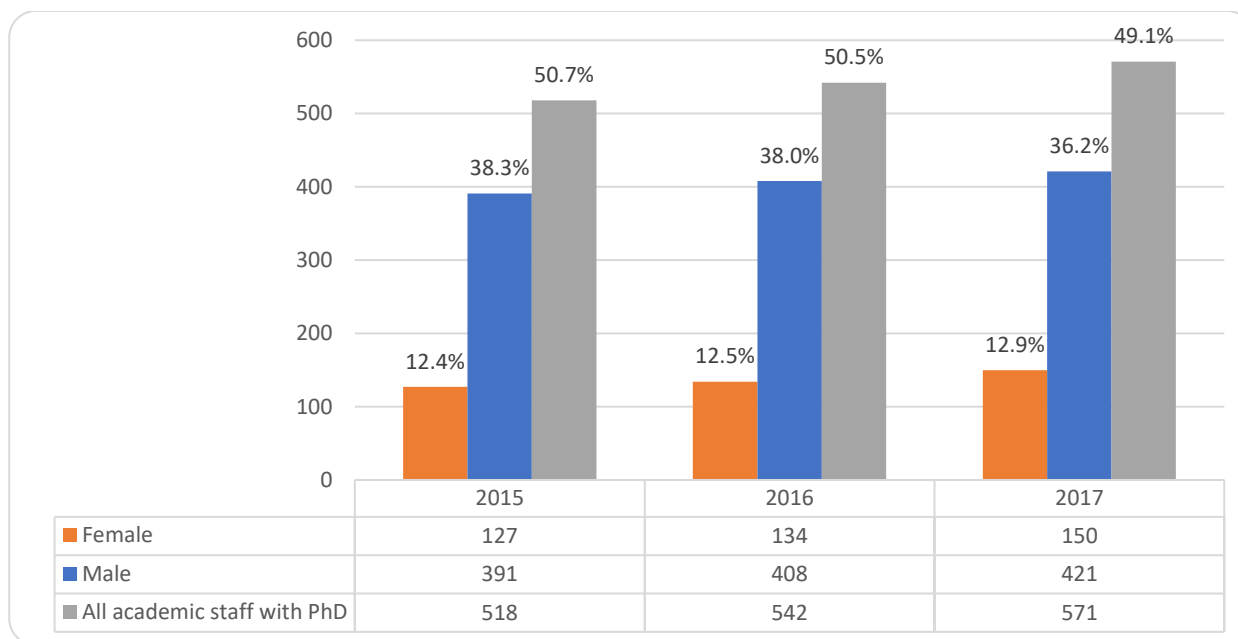


Figure 16: Professors as a % of all academic staff, 2015 – 2017

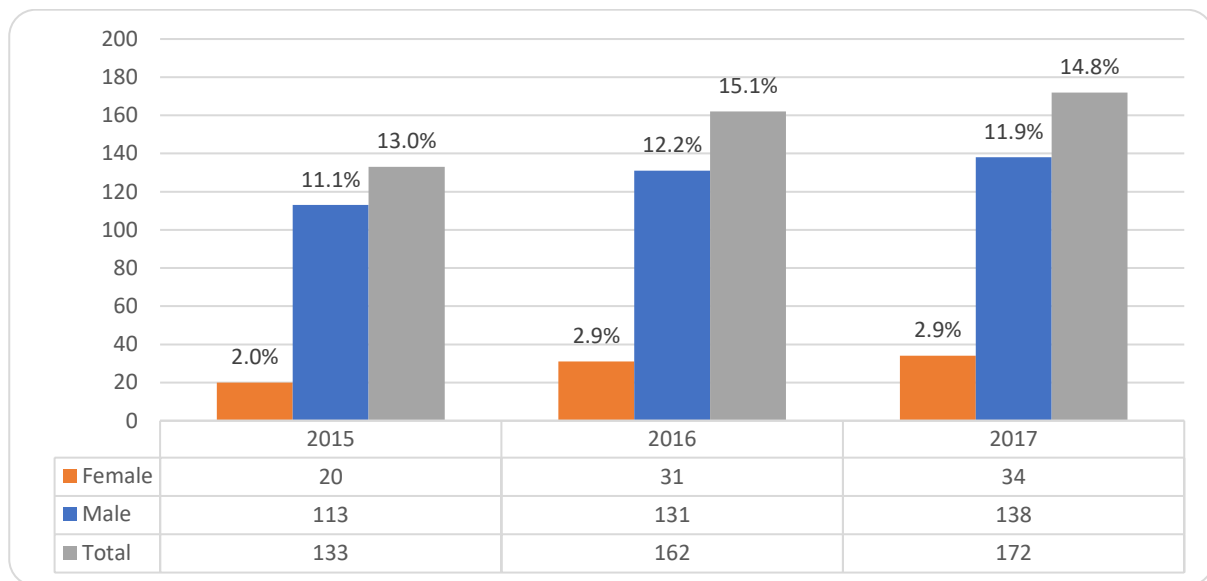


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

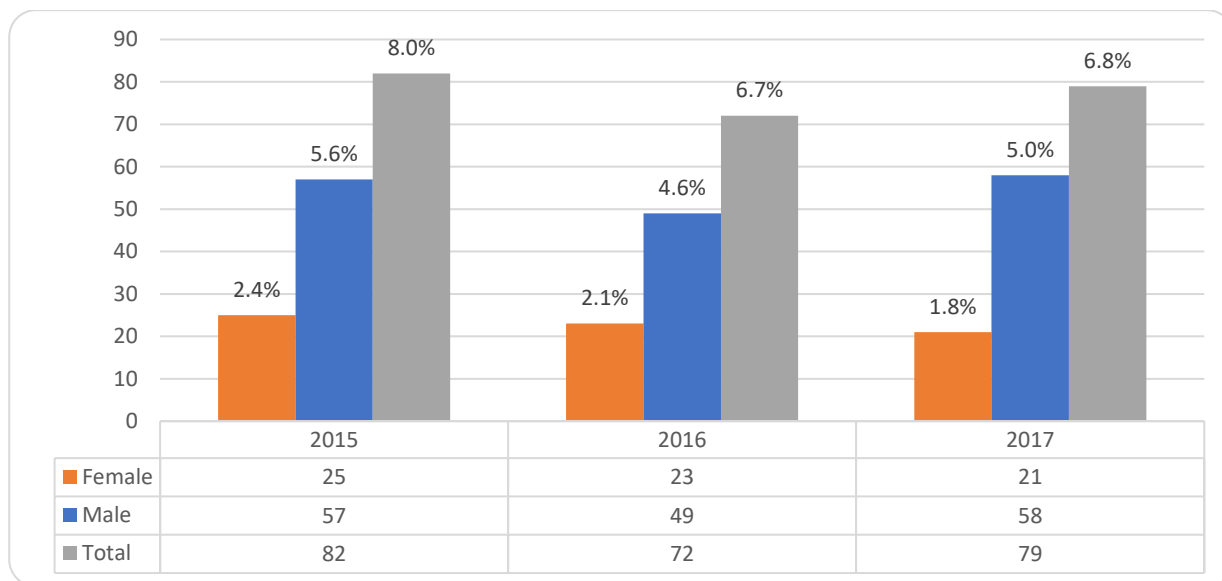


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

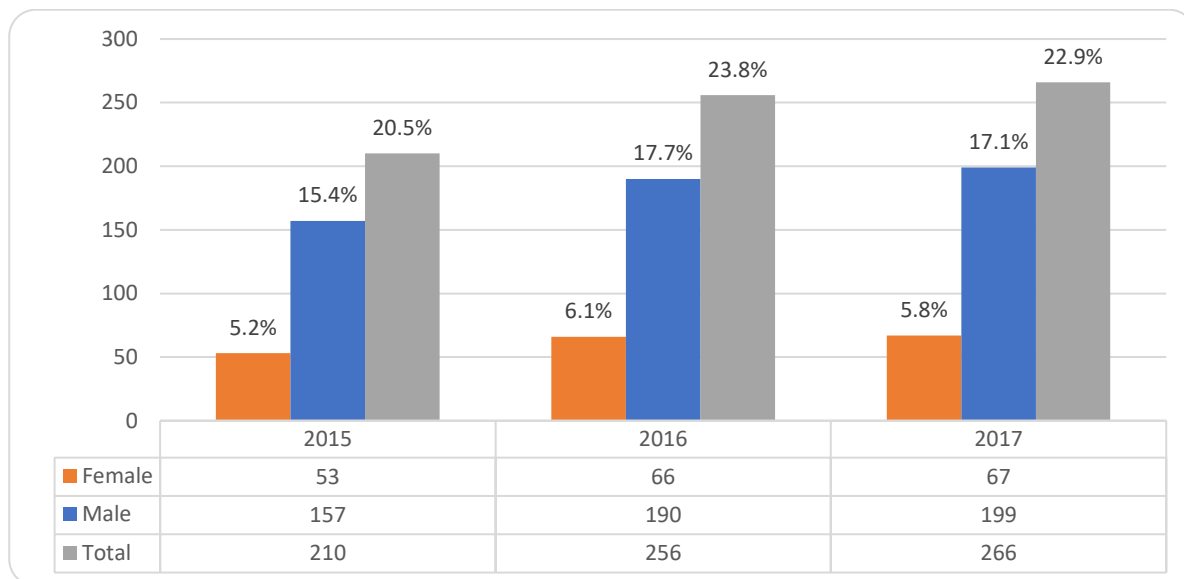


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

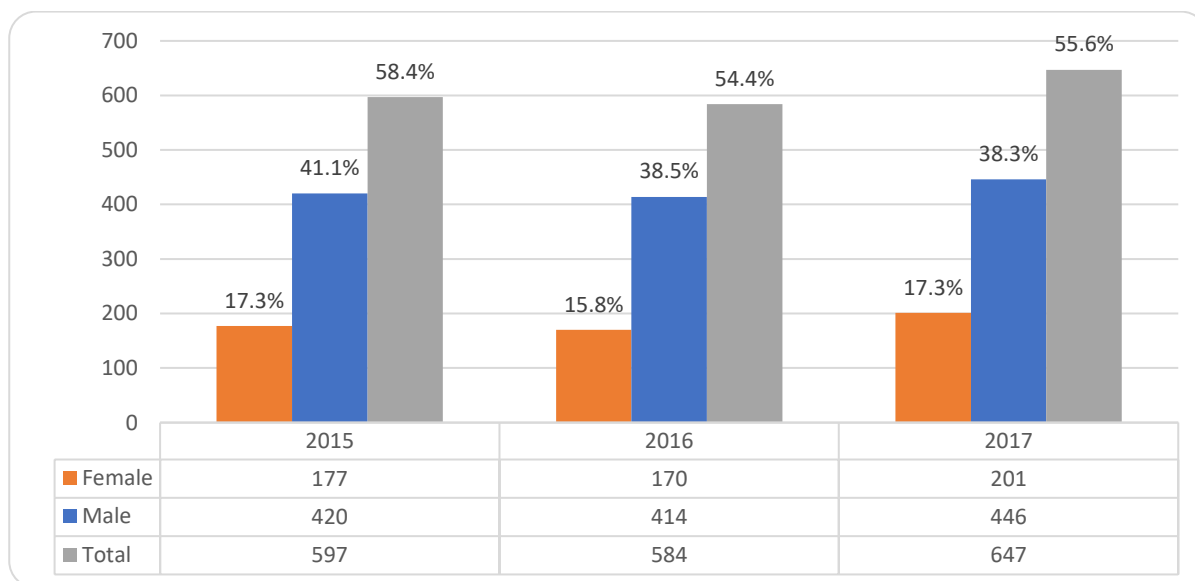


Table 6: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | | | |

Figure 20: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

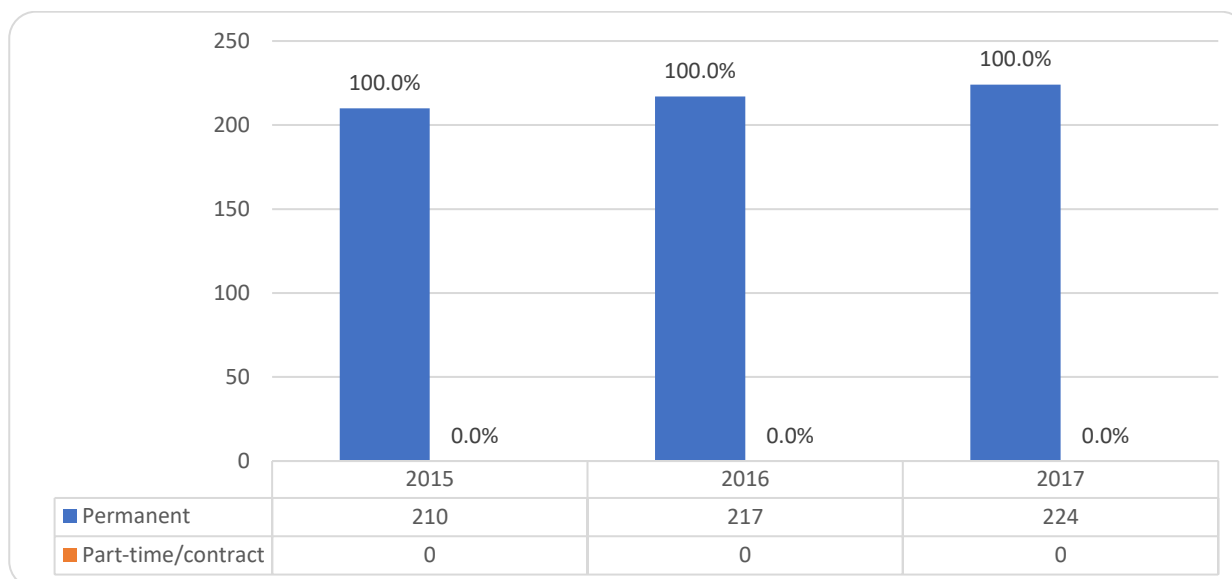


Table 7: University of Lagos did not provide data on postgraduate research

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | | | |

Table 8: Research income by source, 2015 – 2017 (US \$)

| | Government sources | National research councils/ funding agencies or equivalent | Private sector/industry | International funding from agencies and foundations outside of Africa | Other sources | Total |
|------|--------------------|--|-------------------------|---|---------------|----------------|
| 2015 | | | | \$3,267,288.75 | | \$3,267,288.75 |
| 2016 | | | | \$393,847.17 | | \$393,847.17 |
| 2017 | | | | \$250,305.14 | | \$250,305.14 |

MAKERERE UNIVERSITY

Figure 1: UG vs. PG enrolment, 2015 - 2017

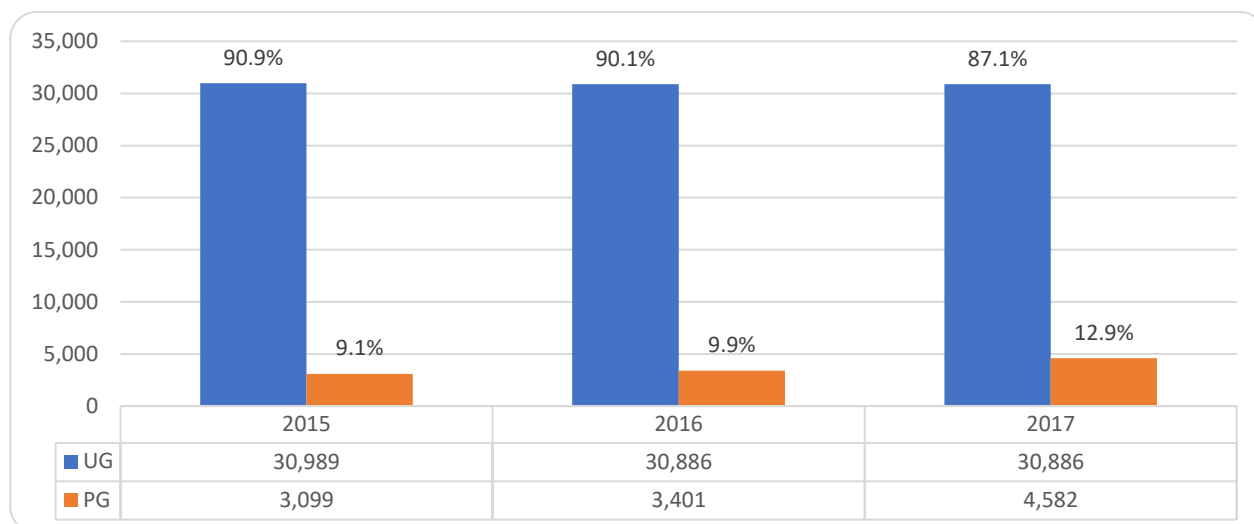


Table 1: Percentage of UG and PG enrolment by study field

| Broad file of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|-------------|-------------|--------------|-------------|-------------|--------------|--------------|-------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 11.4% | 1.0% | 12.4% | 11.1% | 0.9% | 12.0% | 10.8% | 1.7% | 12.4% |
| Engineering and Technology | 9.0% | 0.7% | 9.7% | 8.9% | 1.4% | 10.3% | 8.6% | 1.4% | 10.0% |
| Medical and Health sciences | 5.5% | 1.0% | 6.6% | 6.2% | 2.4% | 8.6% | 6.0% | 3.2% | 9.2% |
| Agricultural sciences | 8.6% | 1.5% | 10.1% | 9.3% | 1.3% | 10.5% | 8.9% | 1.6% | 10.6% |
| Social sciences | 22.4% | 1.0% | 23.4% | 21.7% | 0.7% | 22.4% | 21.0% | 1.3% | 22.3% |
| Humanities | 19.6% | 1.9% | 21.6% | 18.6% | 1.6% | 20.2% | 18.0% | 1.9% | 19.9% |
| Business, Economics and Management Studies | 14.3% | 2.0% | 16.2% | 14.3% | 1.6% | 15.9% | 13.8% | 1.9% | 15.7% |
| Total | 90.9% | 9.1% | 100% | 90.1% | 9.9% | 100% | 87.1% | 12.9% | 100% |

Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 - 2017

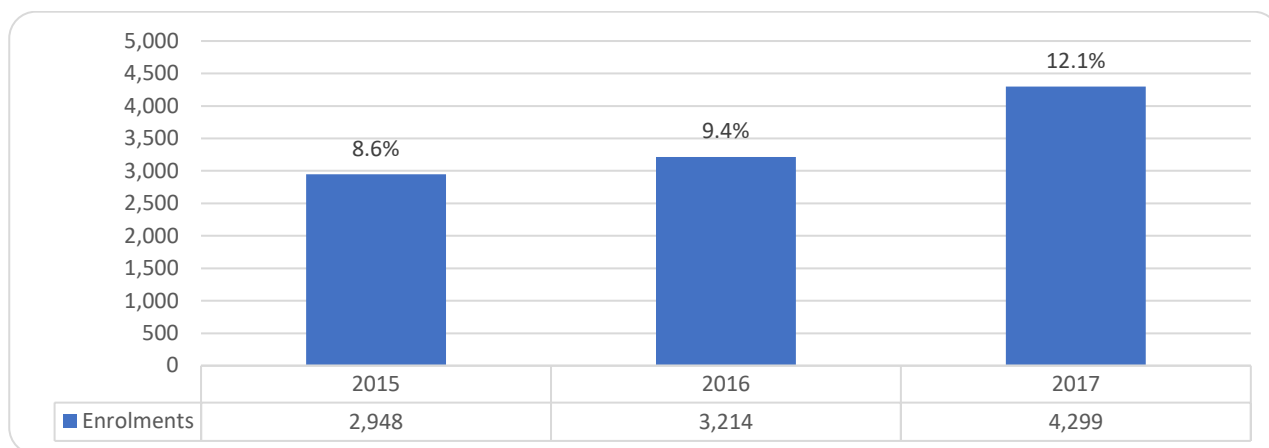


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|-------------|-------------|--------------|
| Natural sciences | 0.9% | 0.8% | 1.6% |
| Engineering and Technology | 0.6% | 1.2% | 1.2% |
| Medical and Health sciences | 1.0% | 2.4% | 3.1% |
| Agricultural sciences | 1.4% | 1.2% | 1.6% |
| Social sciences | 0.9% | 0.6% | 1.1% |
| Humanities | 1.9% | 1.6% | 1.8% |
| Business, Economics and Management Studies | 1.9% | 1.6% | 1.8% |
| Total | 8.6% | 9.4% | 12.1% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

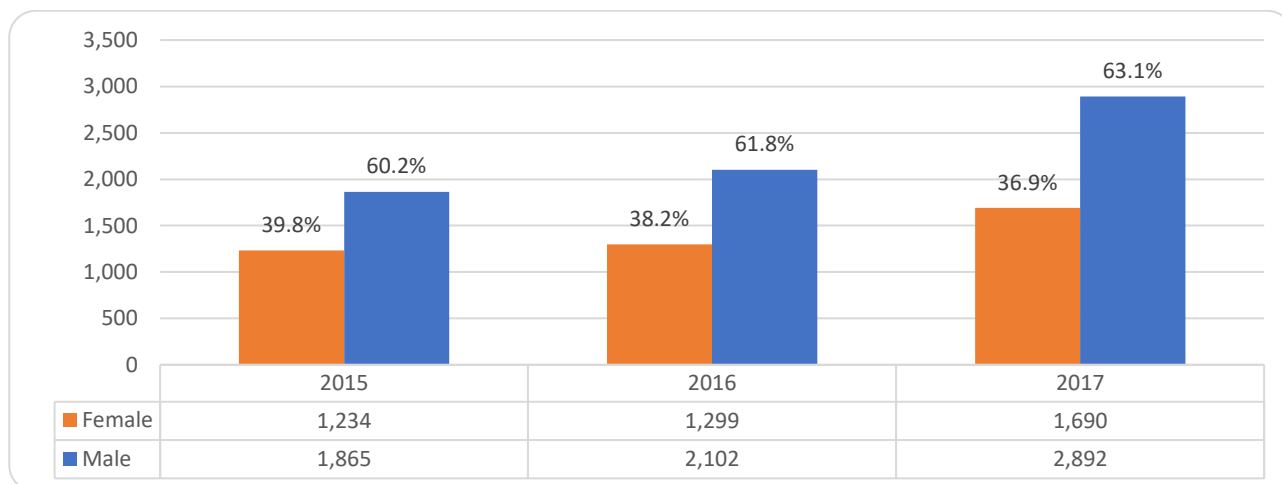


Figure 4: Master’s enrolments by gender, 2015 – 2017

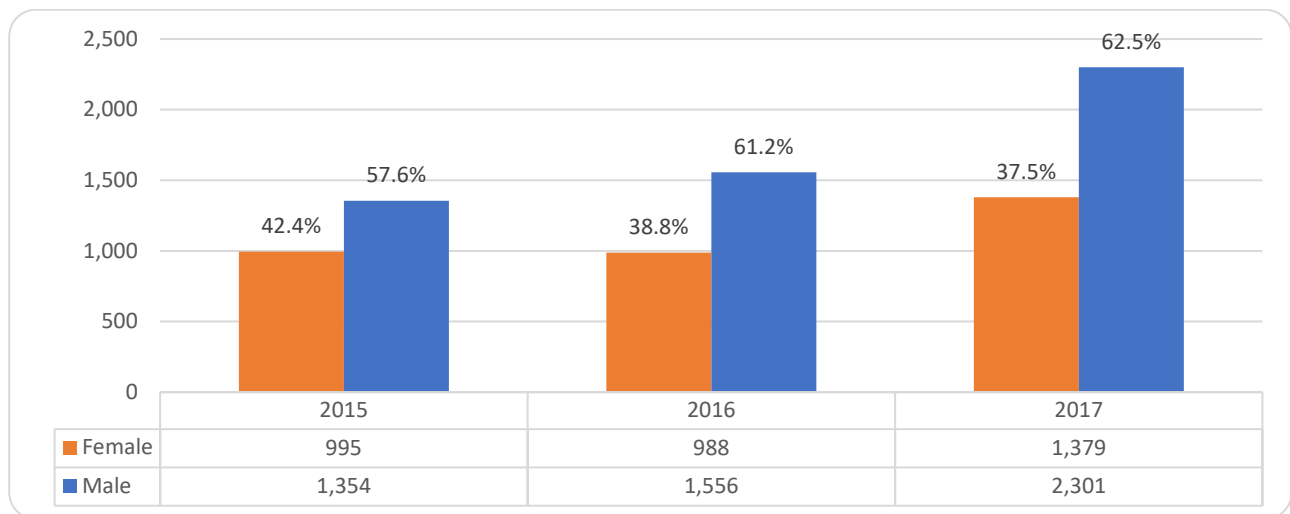
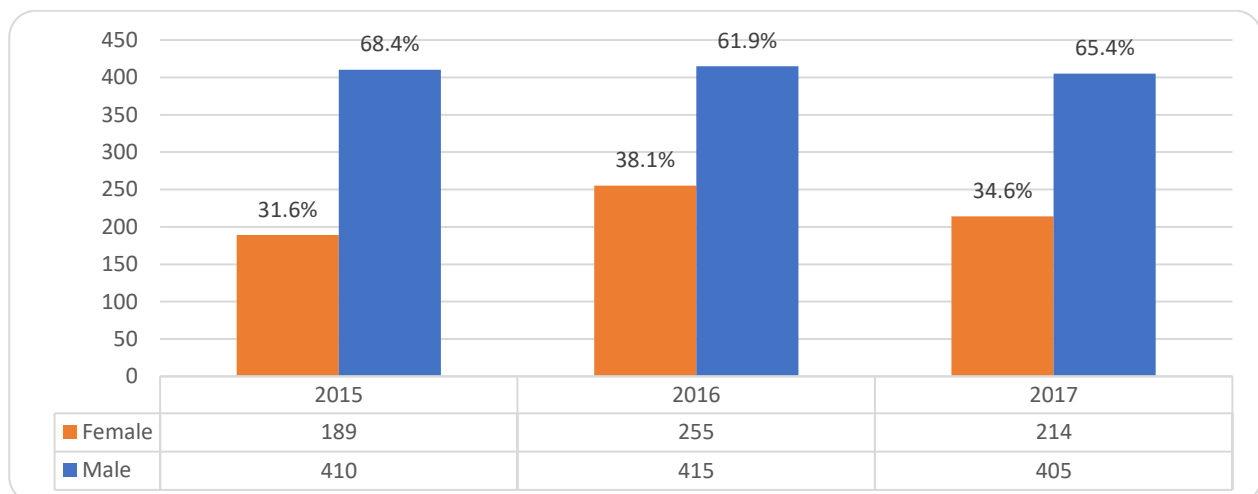


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG and PG graduates as a % of total graduates (UG & PG), 2015 – 2017

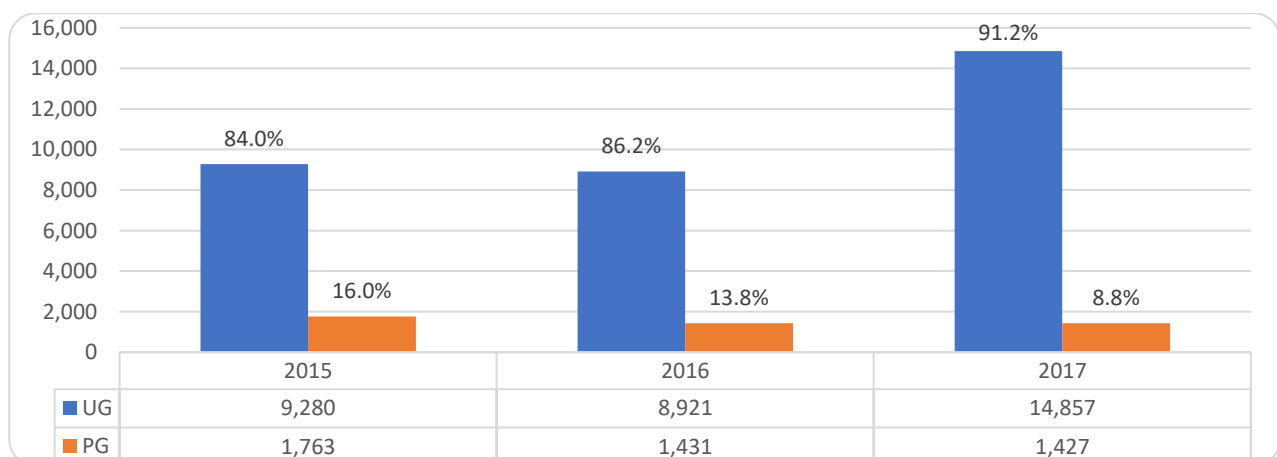


Table 3: UG and PG graduates as a % of total graduates, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|-------------|--------------|--------------|-------------|--------------|-------------|-------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 18.7% | 2.3% | 21.0% | 17.1% | 2.3% | 19.4% | 11.5% | 1.4% | 12.9% |
| Engineering and Technology | 6.4% | 1.5% | 7.9% | 6.8% | 2.2% | 9.0% | 8.5% | 1.3% | 9.7% |
| Medical and Health sciences | 4.7% | 2.1% | 6.7% | 5.7% | 2.1% | 7.8% | 6.2% | 1.4% | 7.6% |
| Agricultural sciences | 8.6% | 2.1% | 10.7% | 9.4% | 2.0% | 11.4% | 11.3% | 1.3% | 12.5% |
| Social sciences | 14.6% | 2.3% | 16.9% | 14.9% | 2.4% | 17.3% | 15.8% | 1.7% | 17.5% |
| Humanities | 14.5% | 3.5% | 18.0% | 14.7% | 0.9% | 15.6% | 21.1% | 0.8% | 21.9% |
| Business, Economics and Management Studies | 16.7% | 2.1% | 18.7% | 17.6% | 1.9% | 19.4% | 16.8% | 1.0% | 17.8% |
| Total | 84.0% | 16.0% | 100% | 86.2% | 13.8% | 100% | 91.2% | 8.8% | 100% |

Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

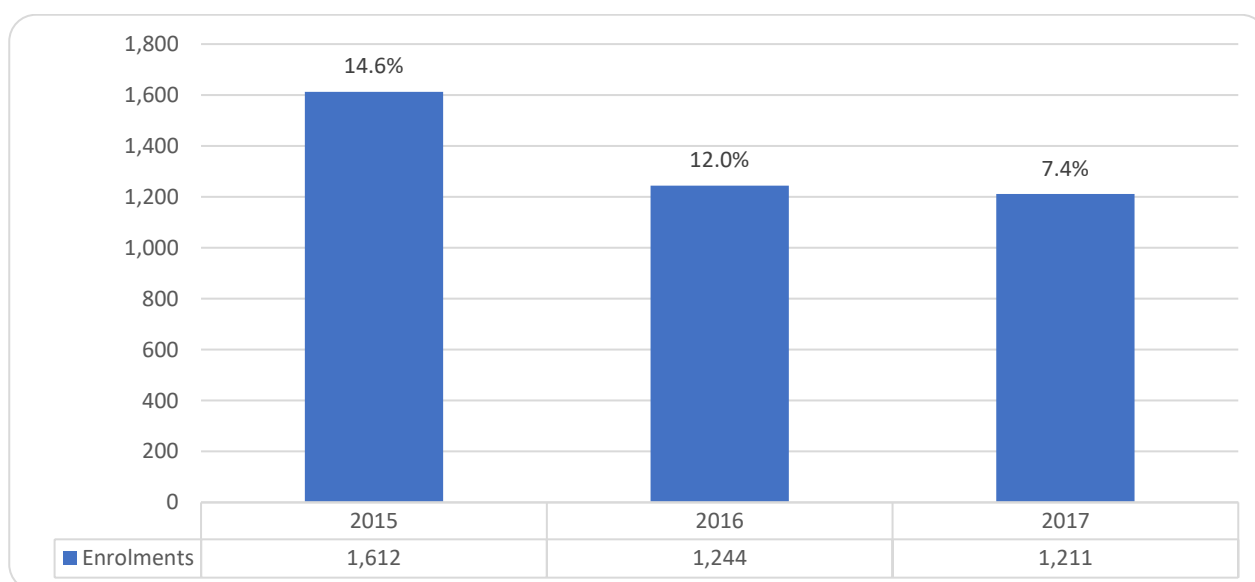


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|-------------|
| Natural sciences | 2.0% | 2.0% | 1.2% |
| Engineering and Technology | 1.3% | 1.7% | 1.1% |
| Medical and Health sciences | 1.9% | 1.9% | 1.3% |
| Agricultural sciences | 2.0% | 1.9% | 1.2% |
| Social sciences | 2.0% | 2.1% | 1.3% |
| Humanities | 3.4% | 0.7% | 0.5% |
| Business, Economics and Management Studies | 2.0% | 1.7% | 0.9% |
| Total | 14.6% | 12.0% | 7.4% |

Figure 8: PhD graduates as a % of total graduates

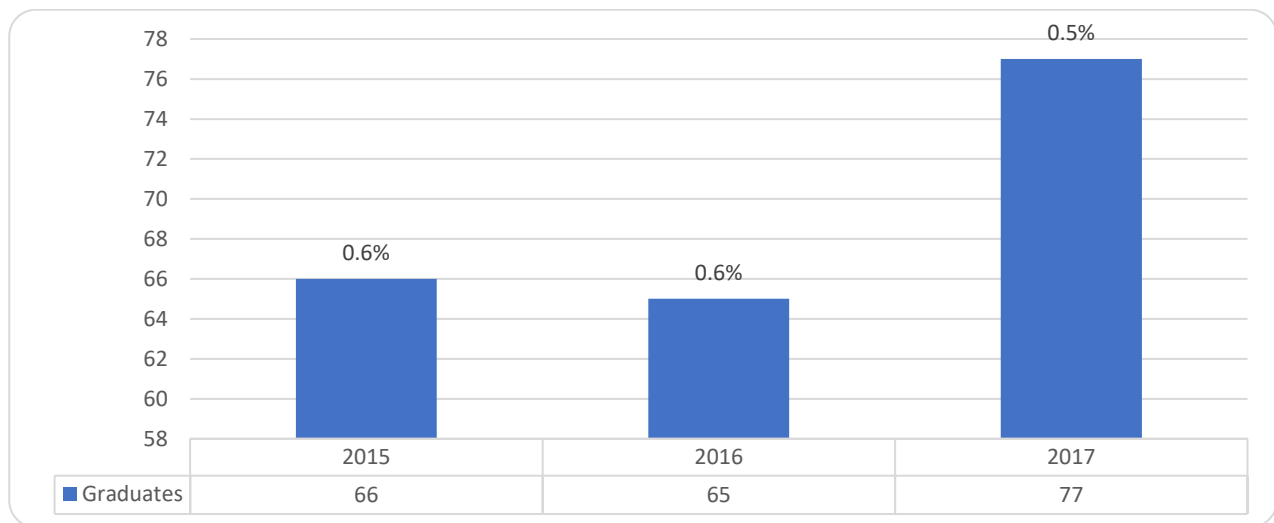


Figure 9: Postgraduate graduates by gender, 2015 – 2017

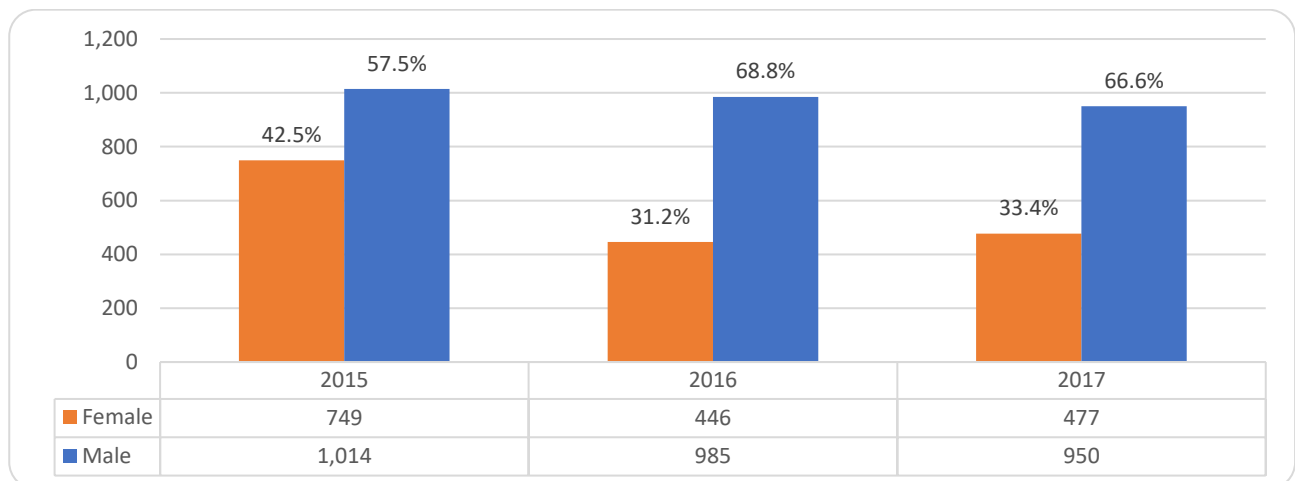


Figure 10: Master's graduates by gender, 2015 – 2017

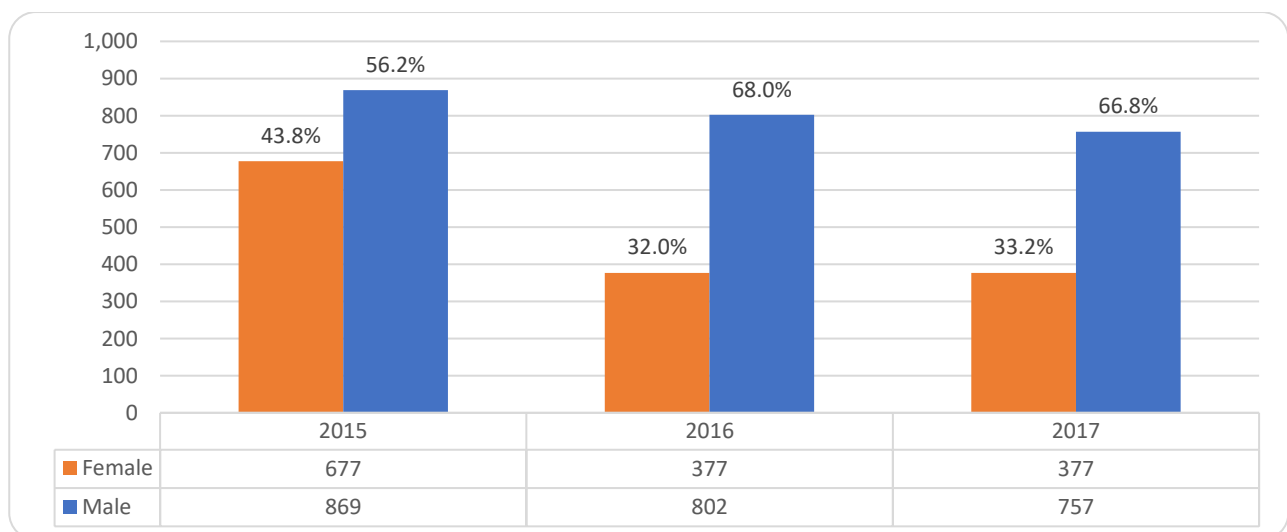


Figure 11: Doctoral graduates by gender, 2015 – 2017

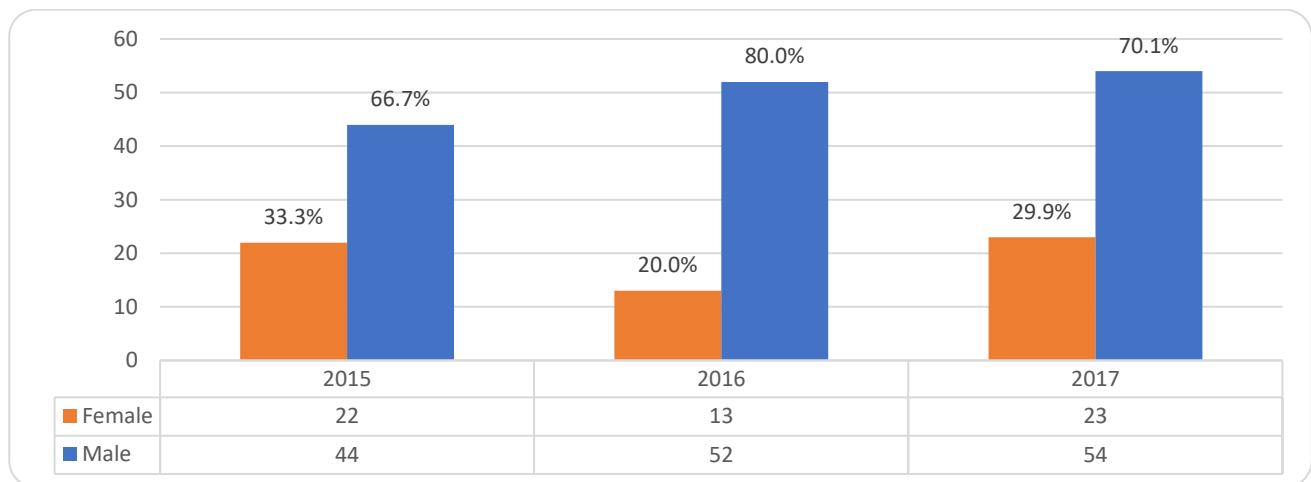
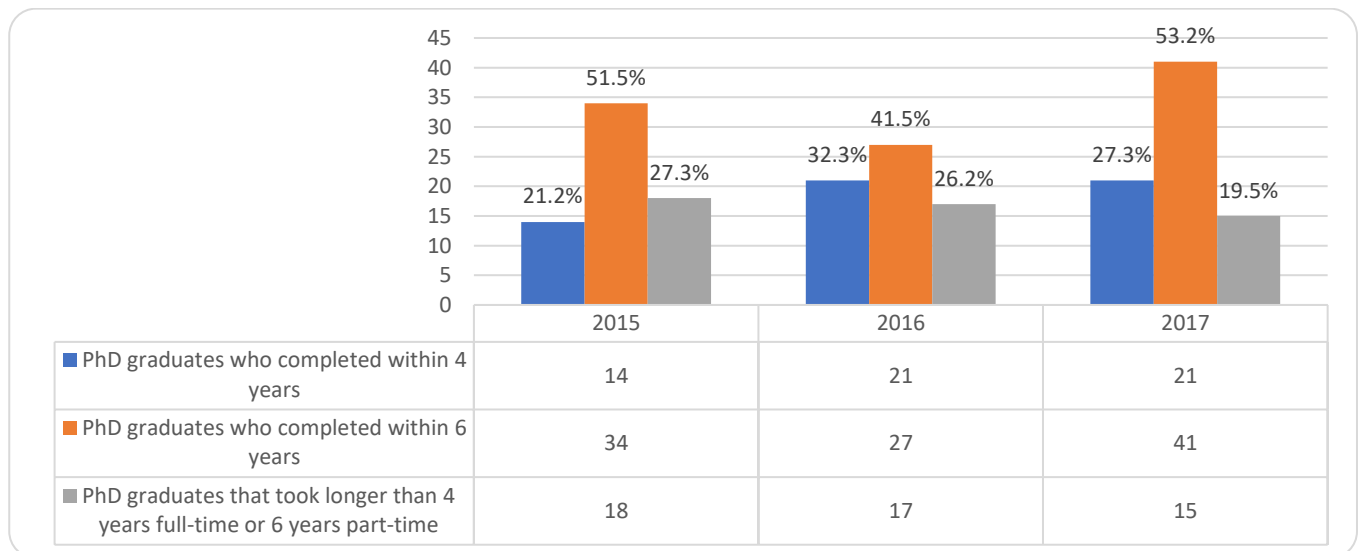


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

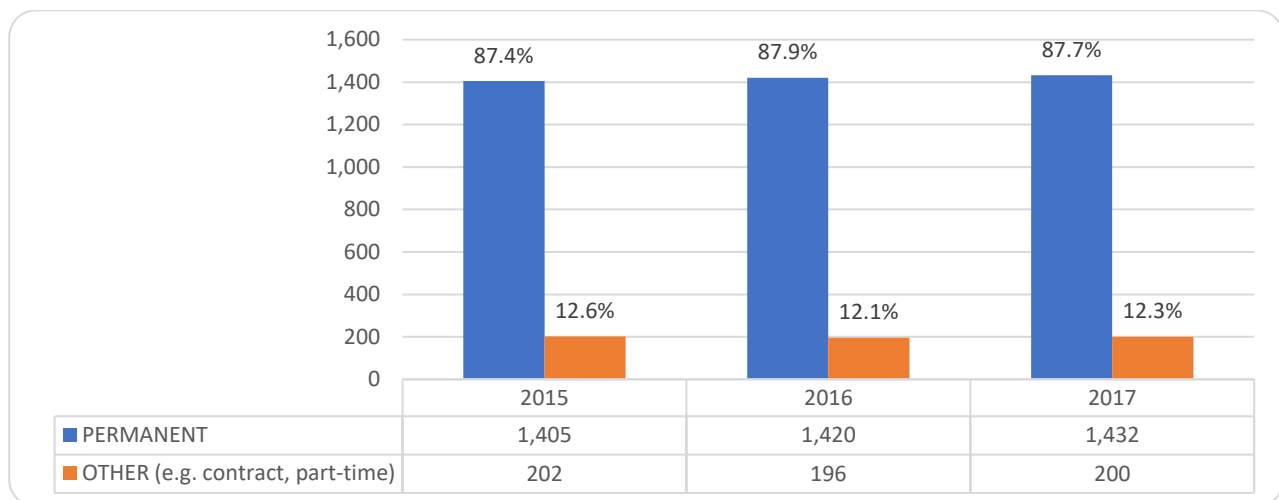


Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 – 2017

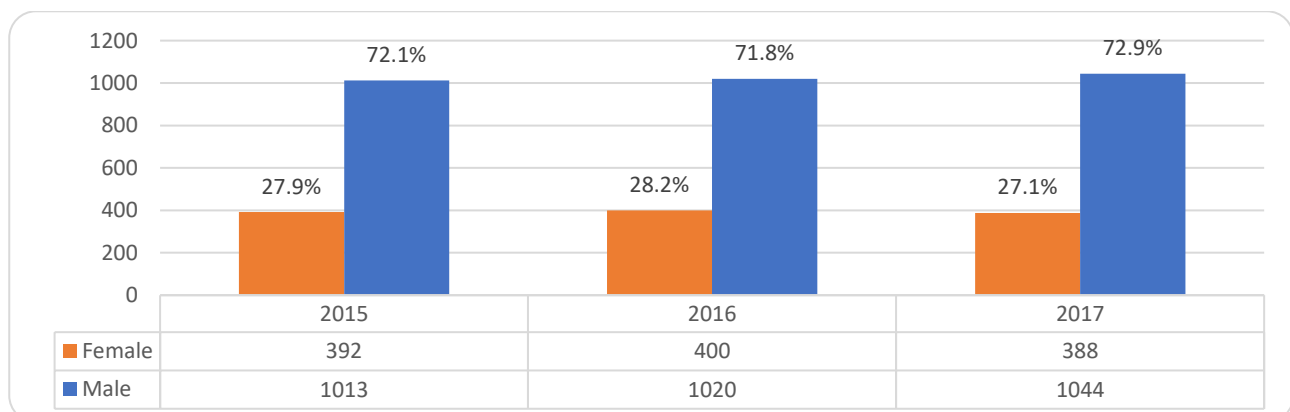


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 – 2017

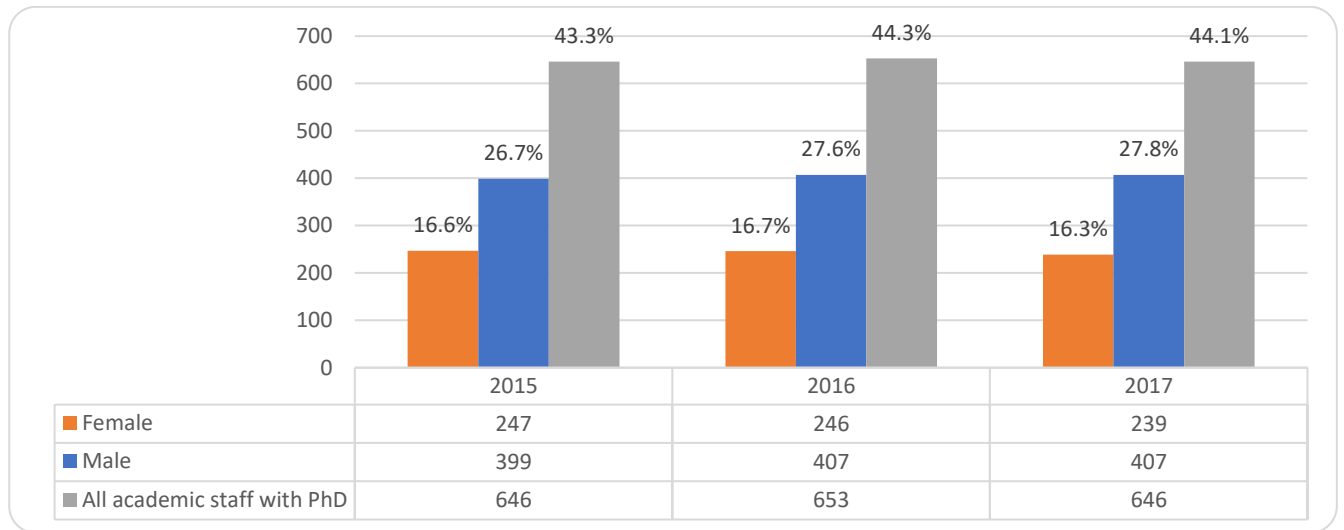


Figure 16: Professors as a % of all academic staff, 2015 – 2017

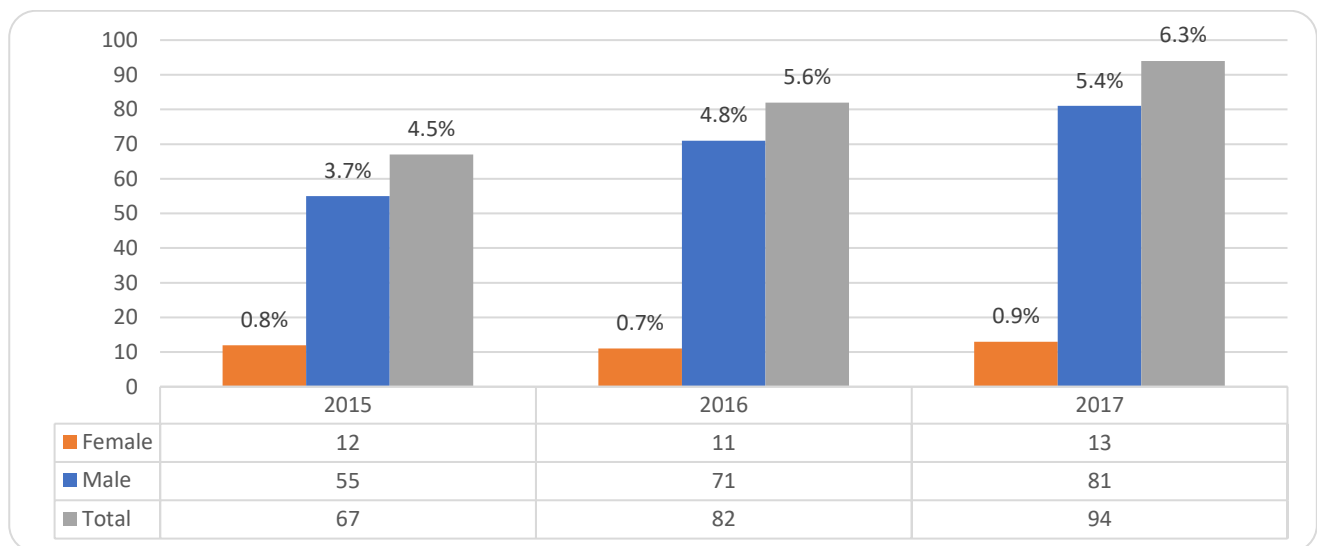


Figure 17: Associate Professors as a % of all academic staff, 2015 – 2017

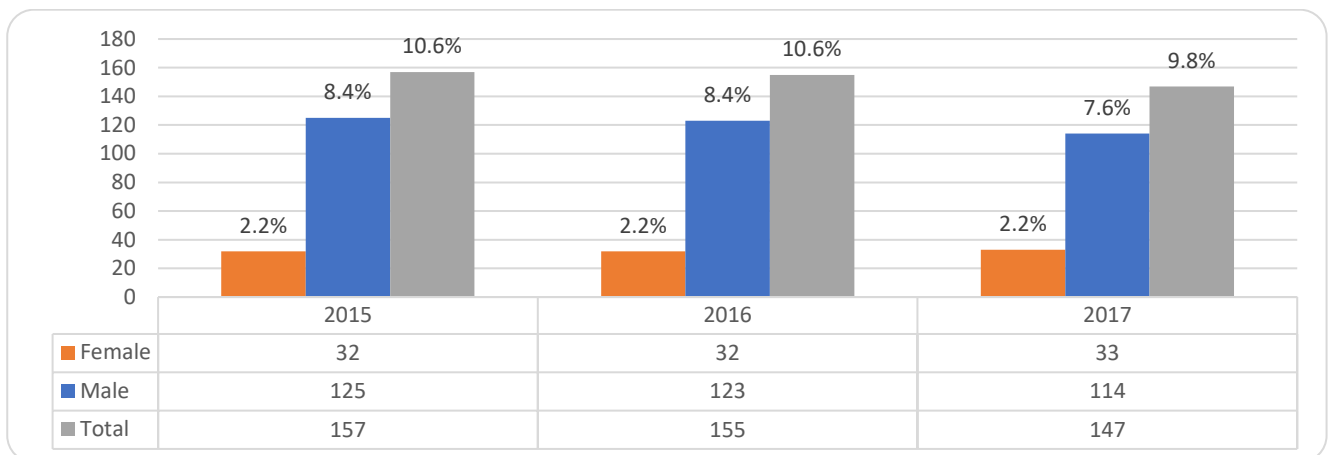


Figure 18: Senior Lecturer as a % of all academic staff, 2015 – 2017

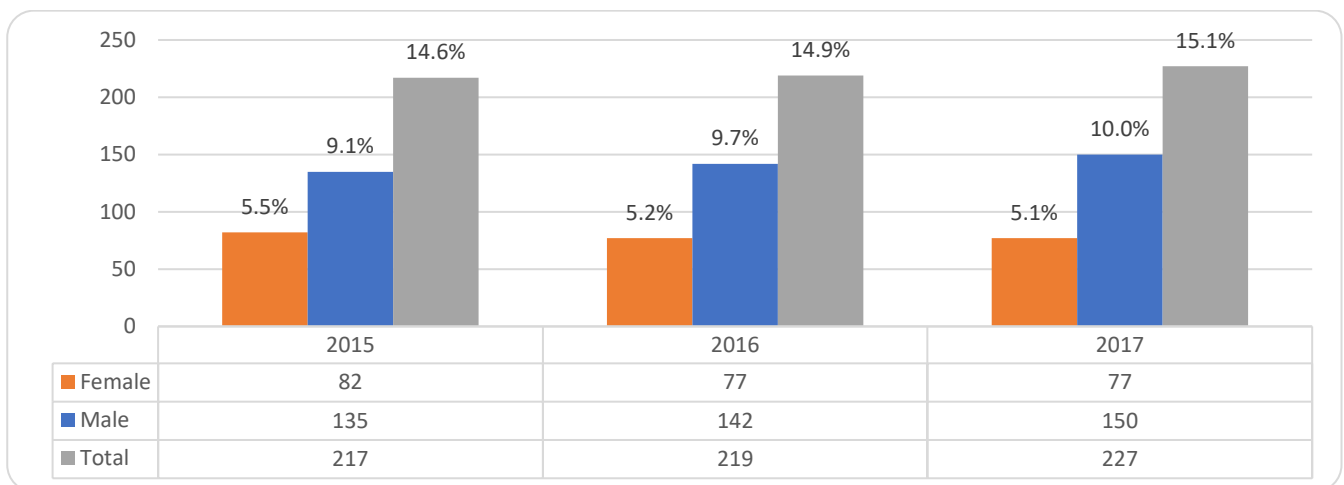


Figure 19: Senior Lecturer as a % of all academic staff, 2015 – 2017

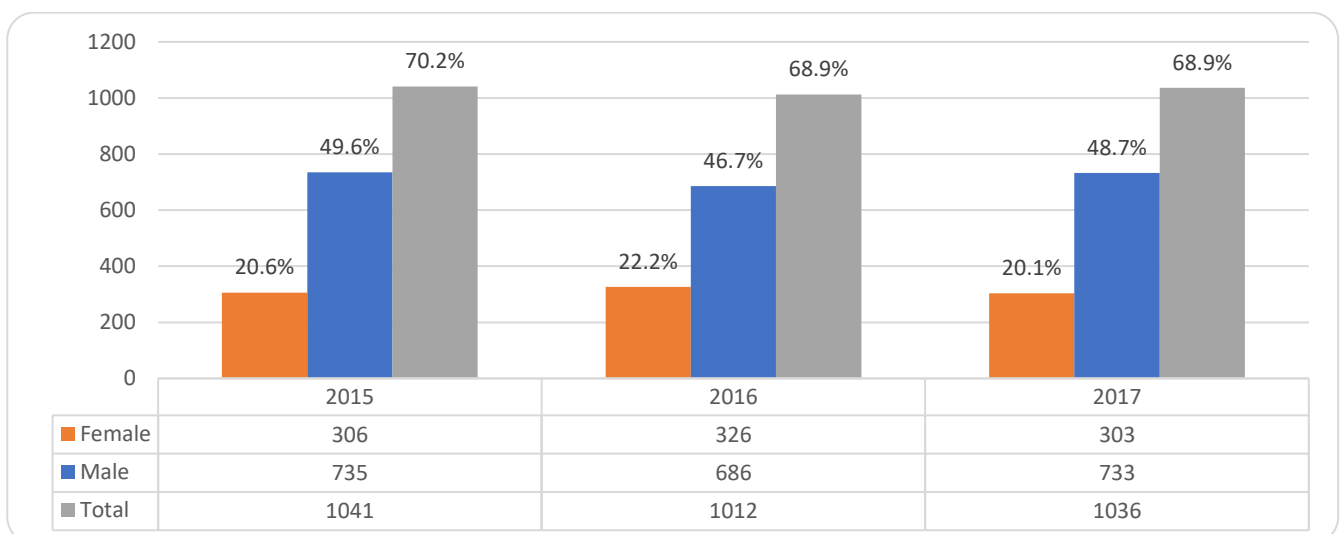


Figure 20: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

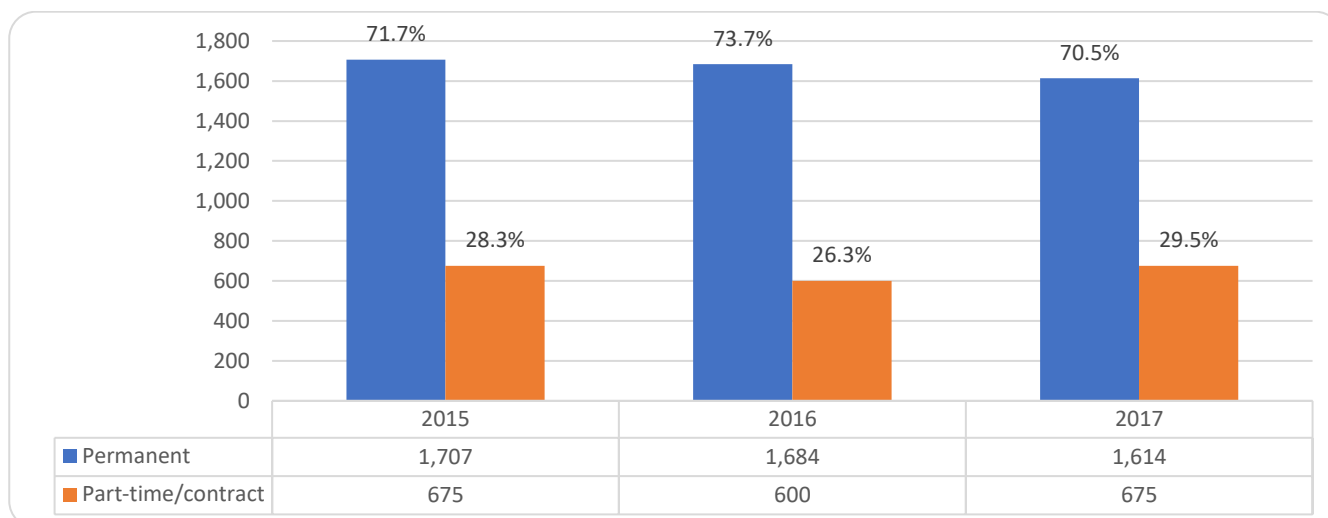


Table 5: Postdoctoral fellows, 2015 – 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 52 | 72 | 96 |

Figure 28: Research income by source, 2015 – 2017 (US \$)

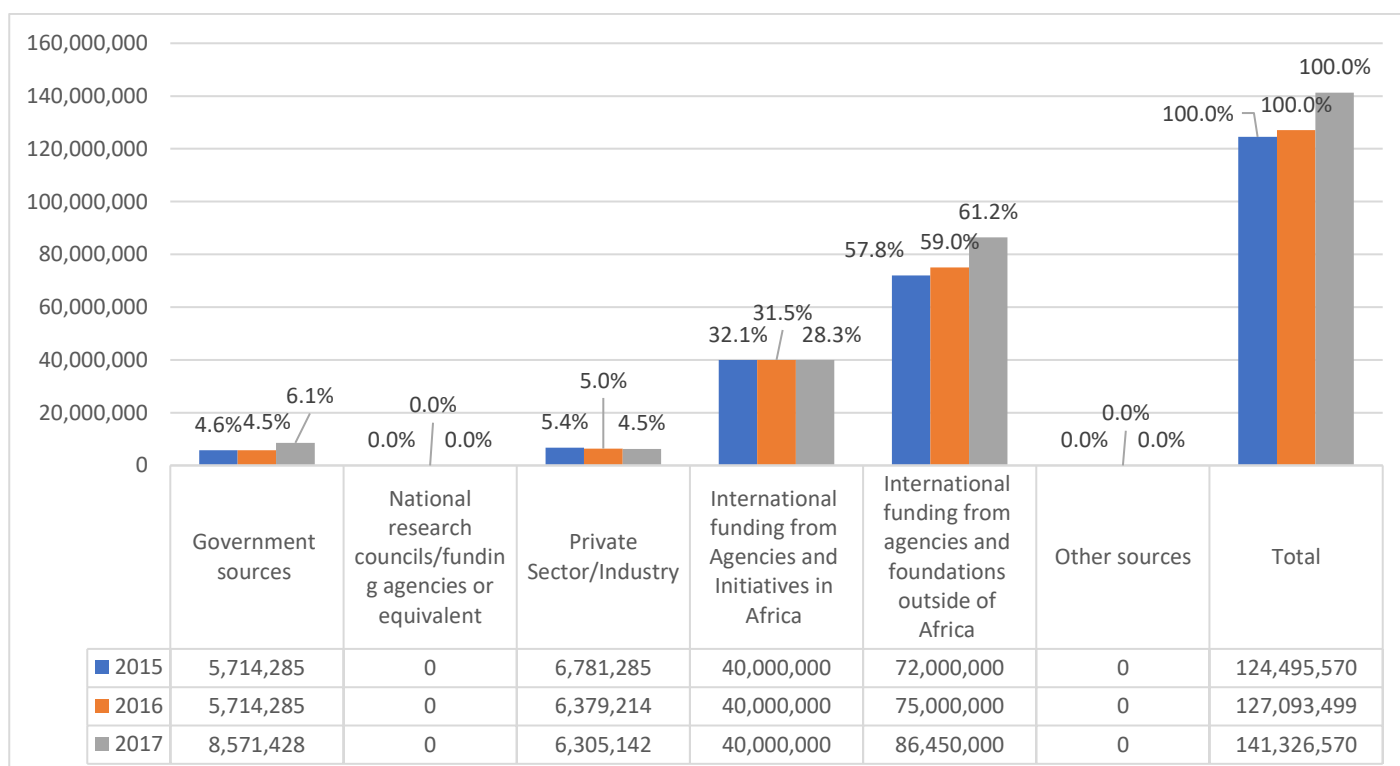


Table 6: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | 2 | 6 | 7 |

RHODES UNIVERSITY

Note: Rhodes does not capture student enrolments and graduates by broad fields of study.

Figure 1: UG vs. PG enrolment, 2015 – 2017

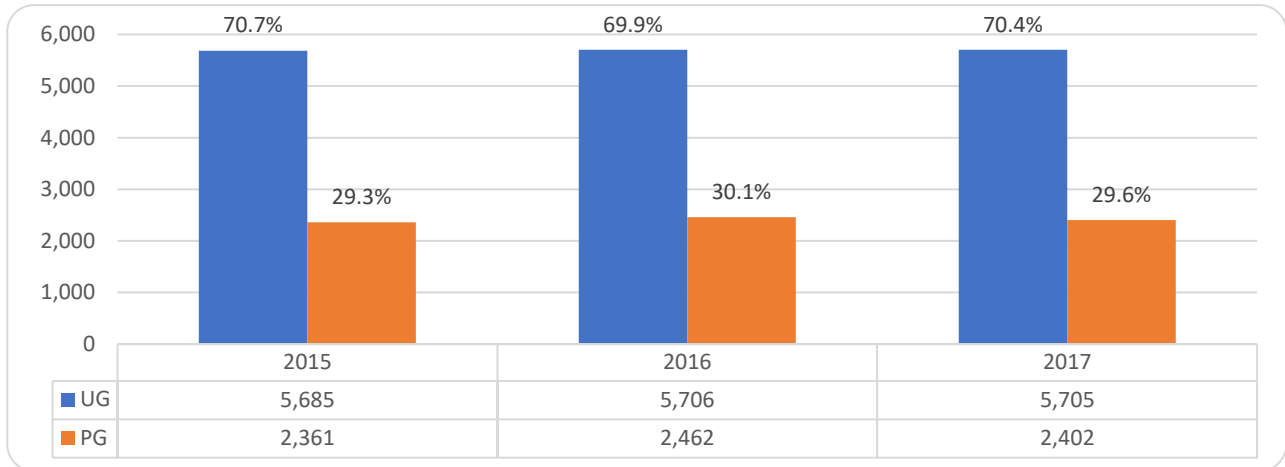


Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 – 2017

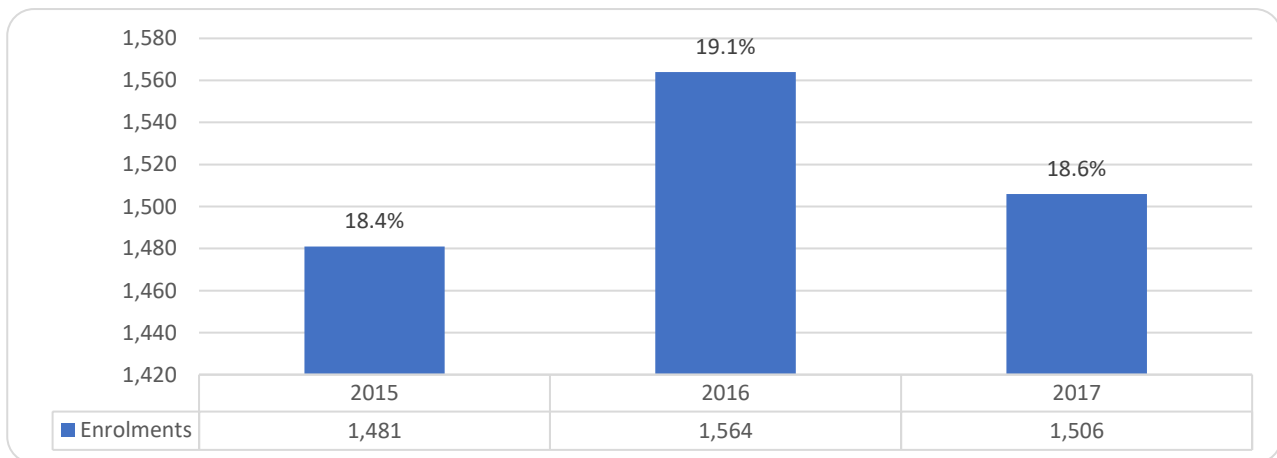


Figure 3: Postgraduate enrolments by gender, 2015 – 2017

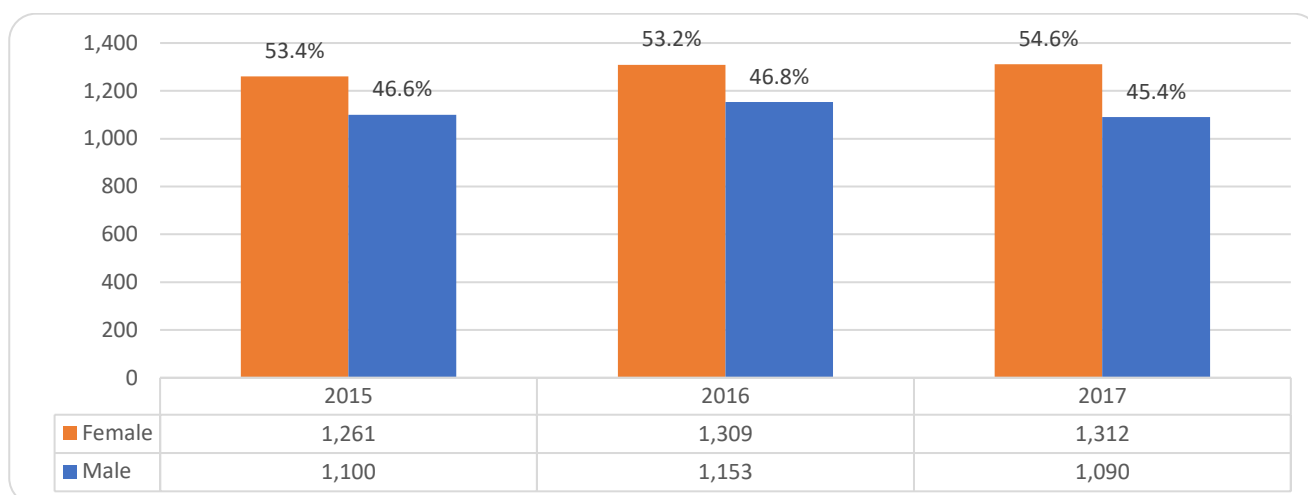


Figure 4: Master's enrolments by gender, 2015 – 2017

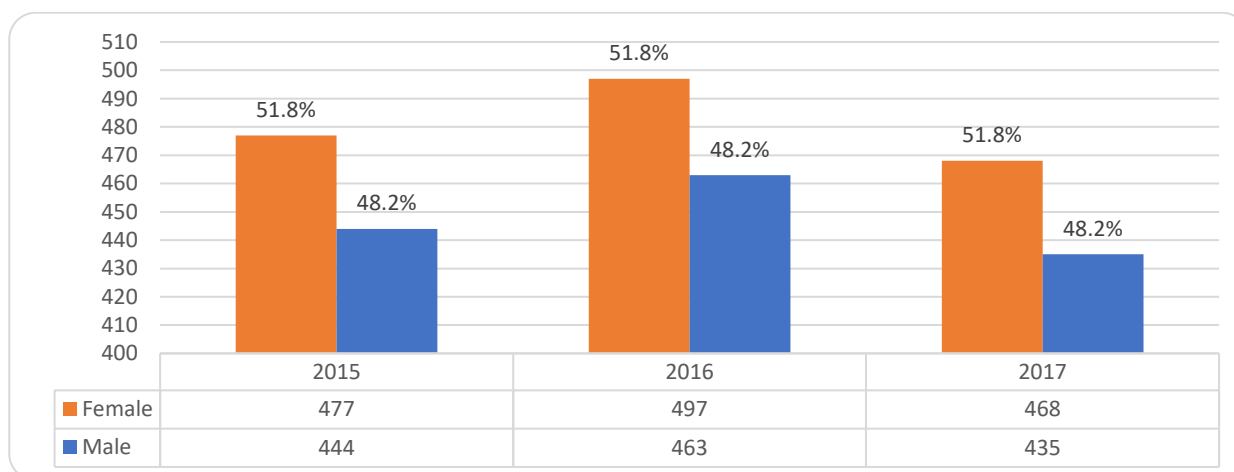
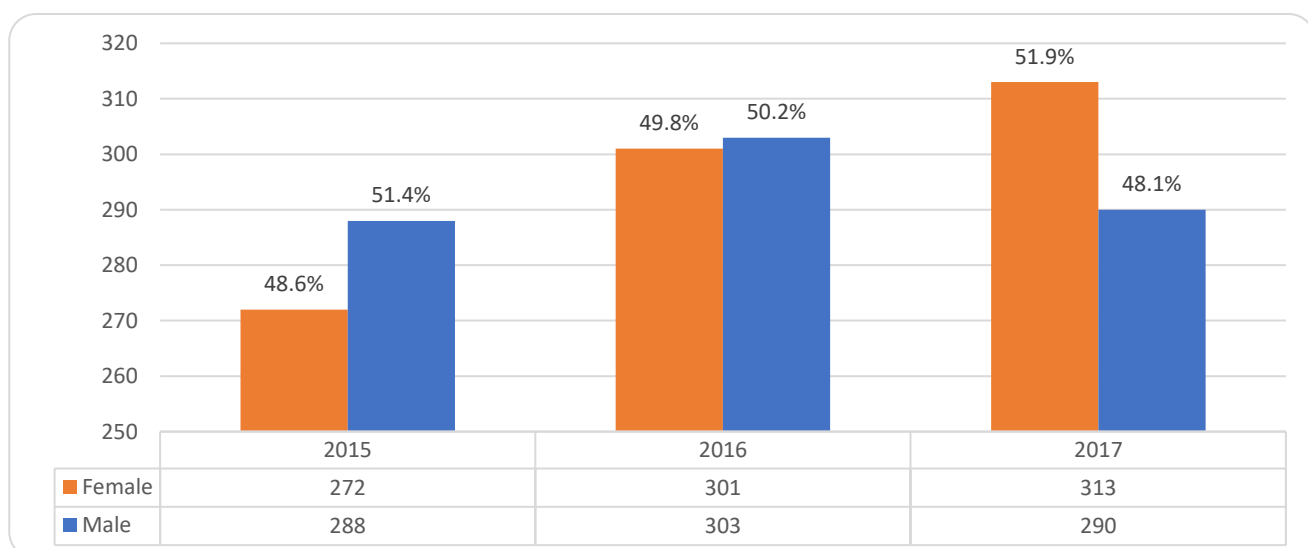


Figure 5: PhD enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG and PG graduates as a % of total graduates (UG & PG), 2015 – 2017

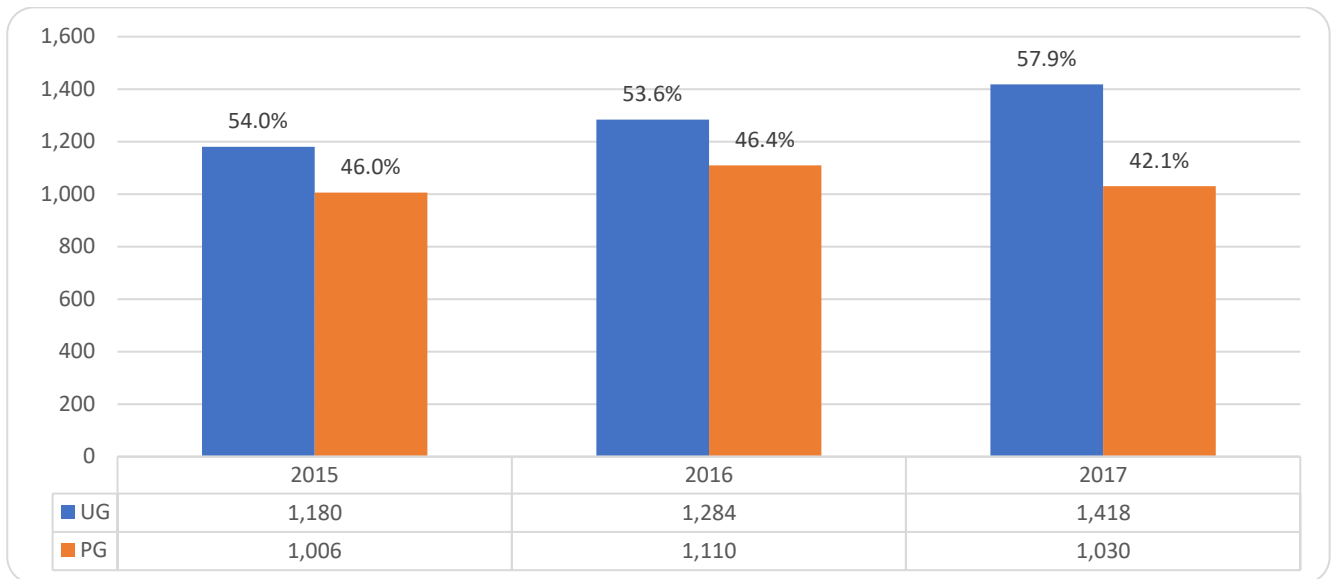


Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

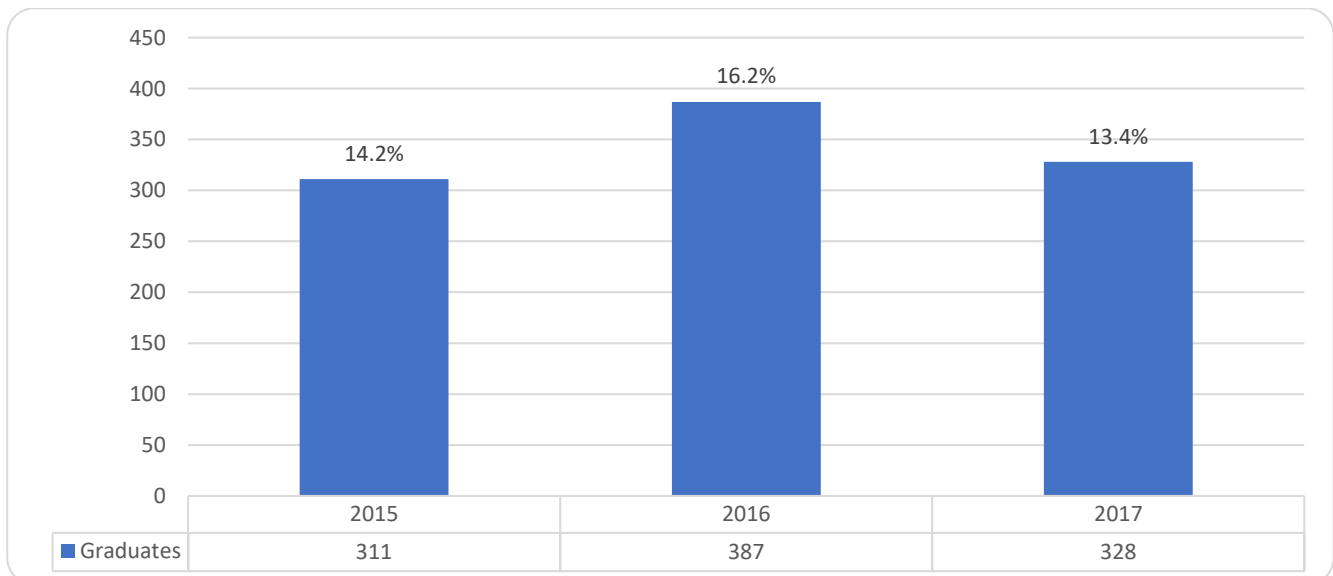


Figure 8: PhD graduates as a % of total graduates (UG & PG), 2015 – 2017

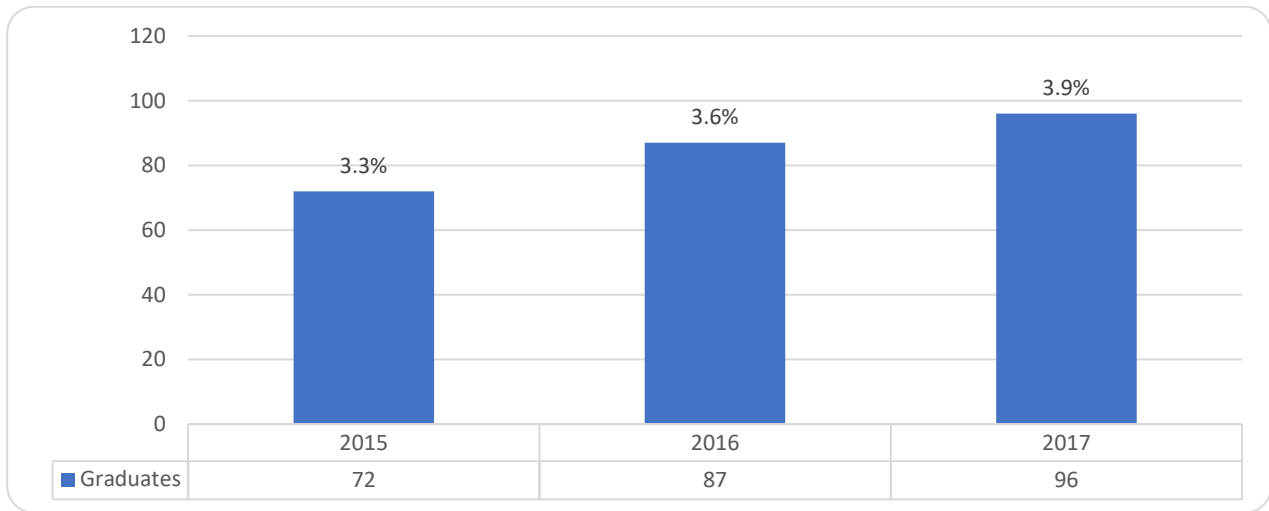


Figure 9: Postgraduate graduates by gender, 2015 – 2017

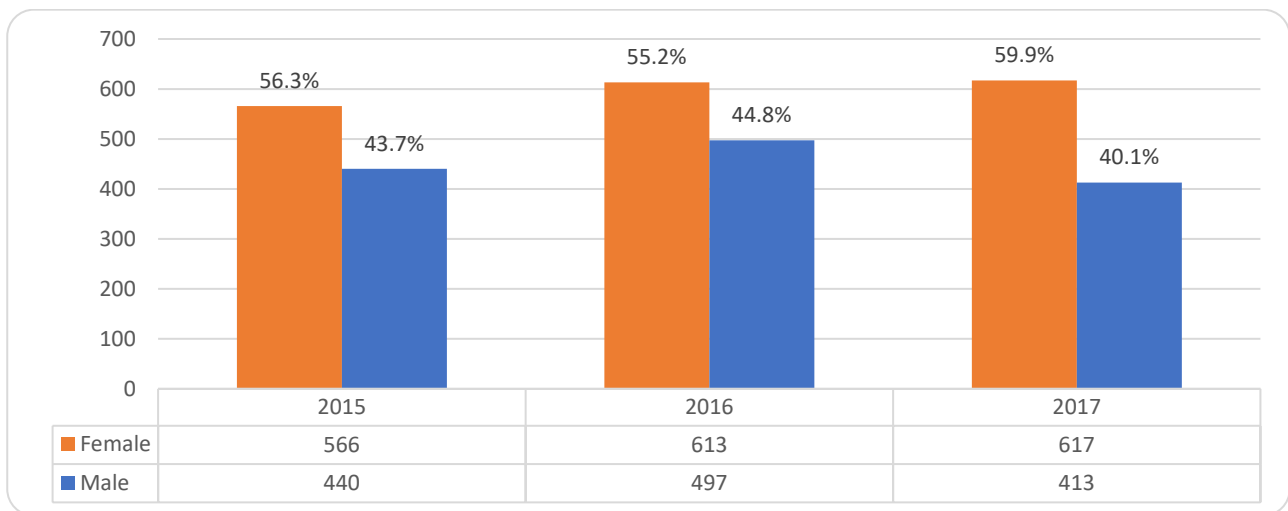


Figure 10: Master's graduates by gender, 2015 – 2017

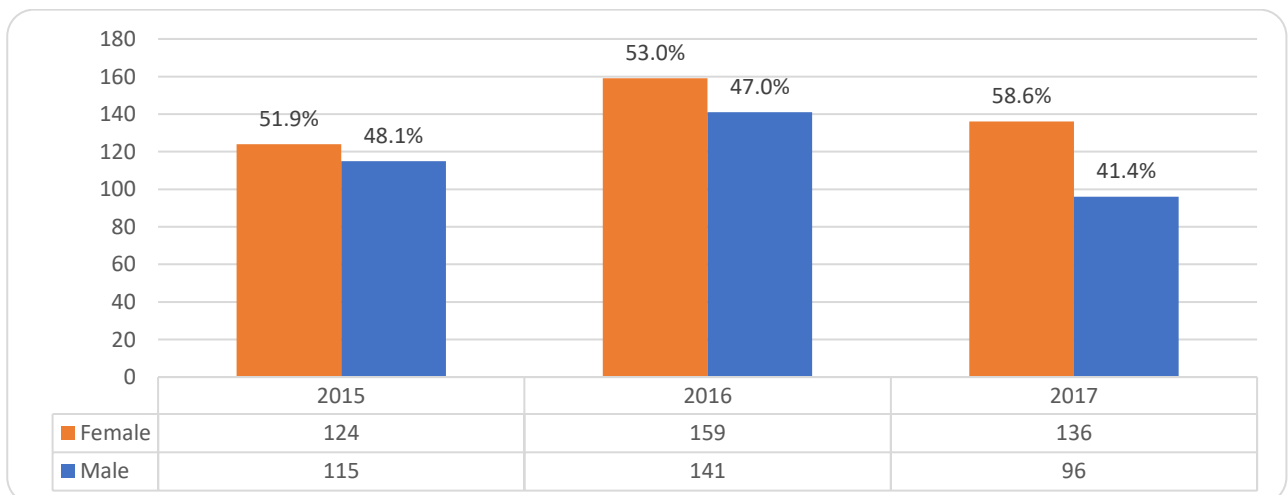


Figure 11: Doctoral graduates by gender, 2015 – 2017

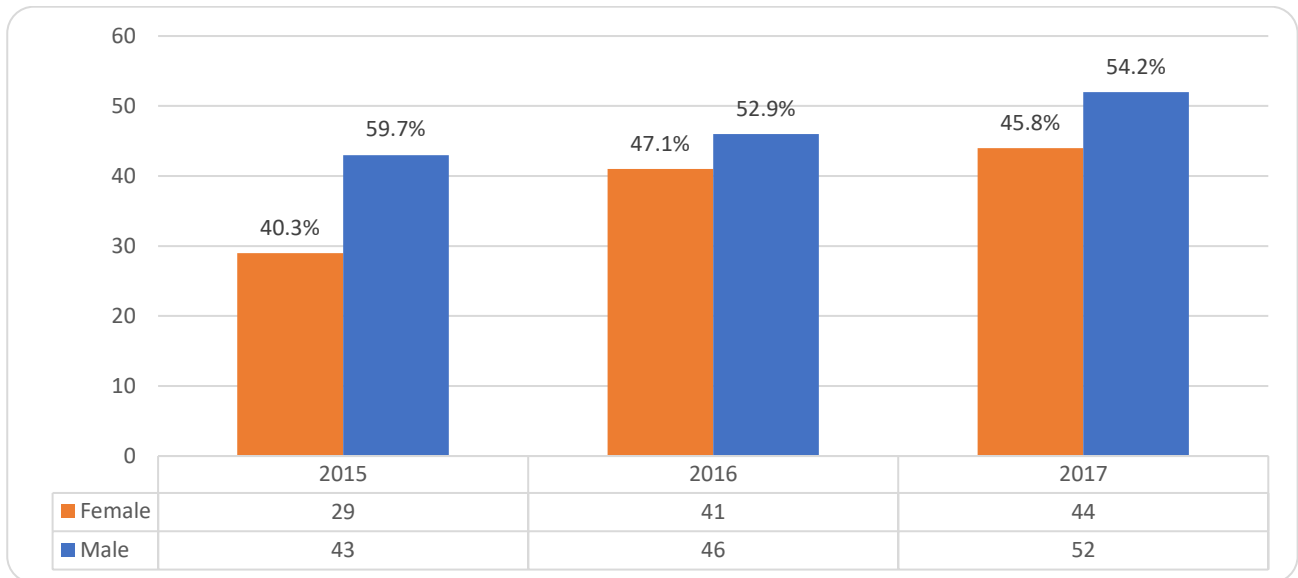
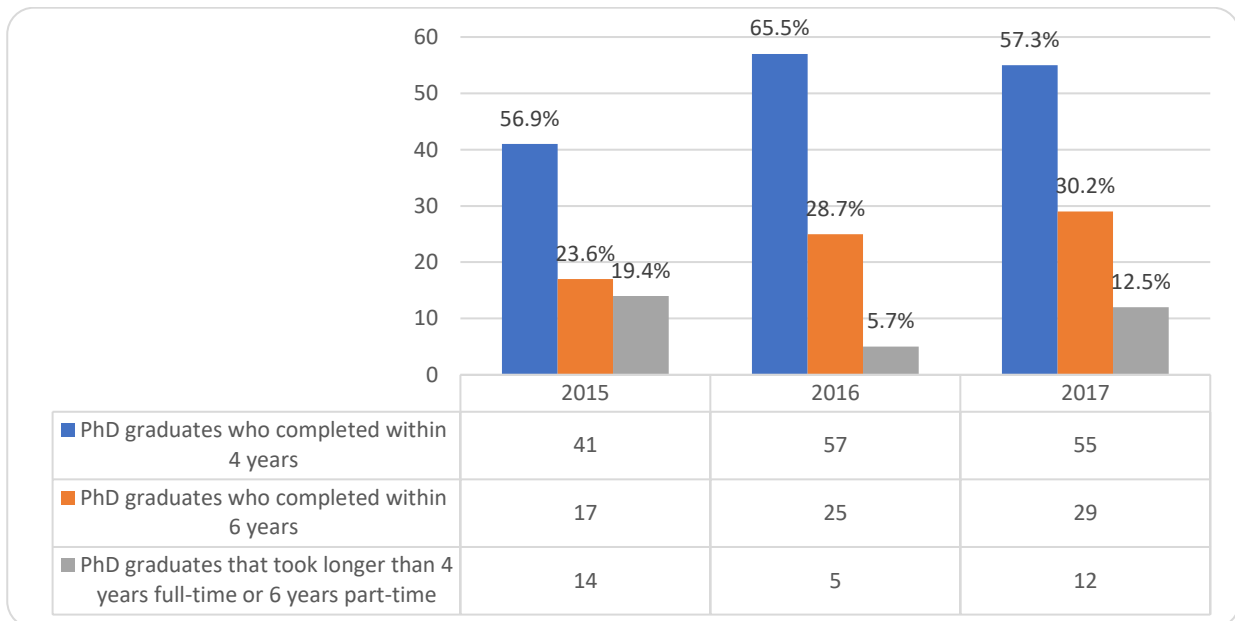


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

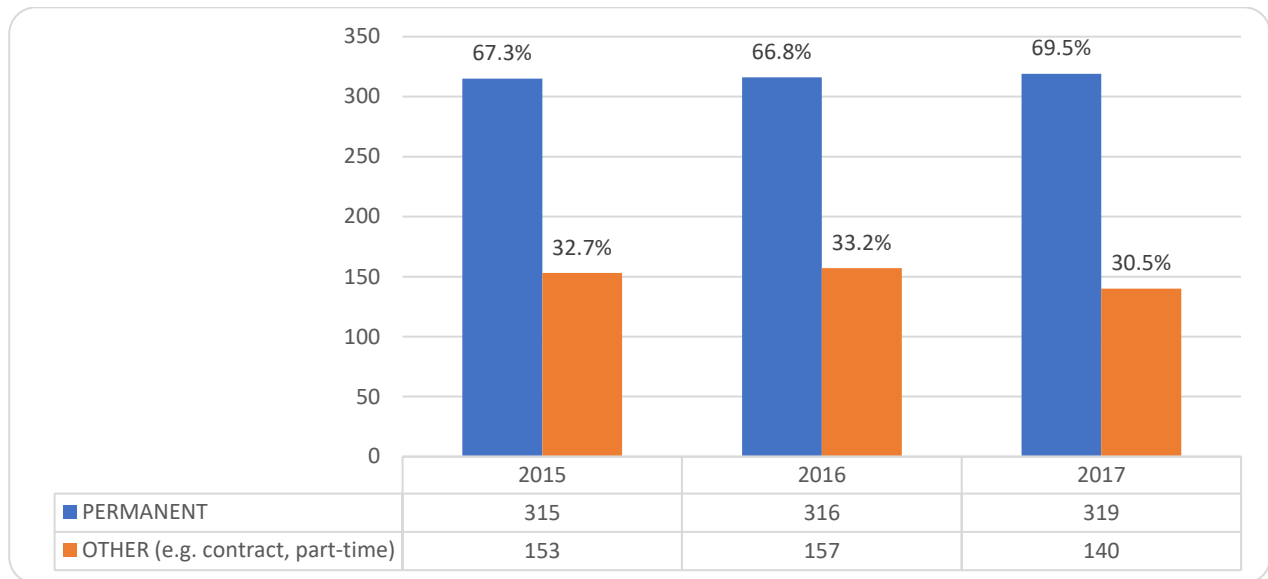


Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 – 2017

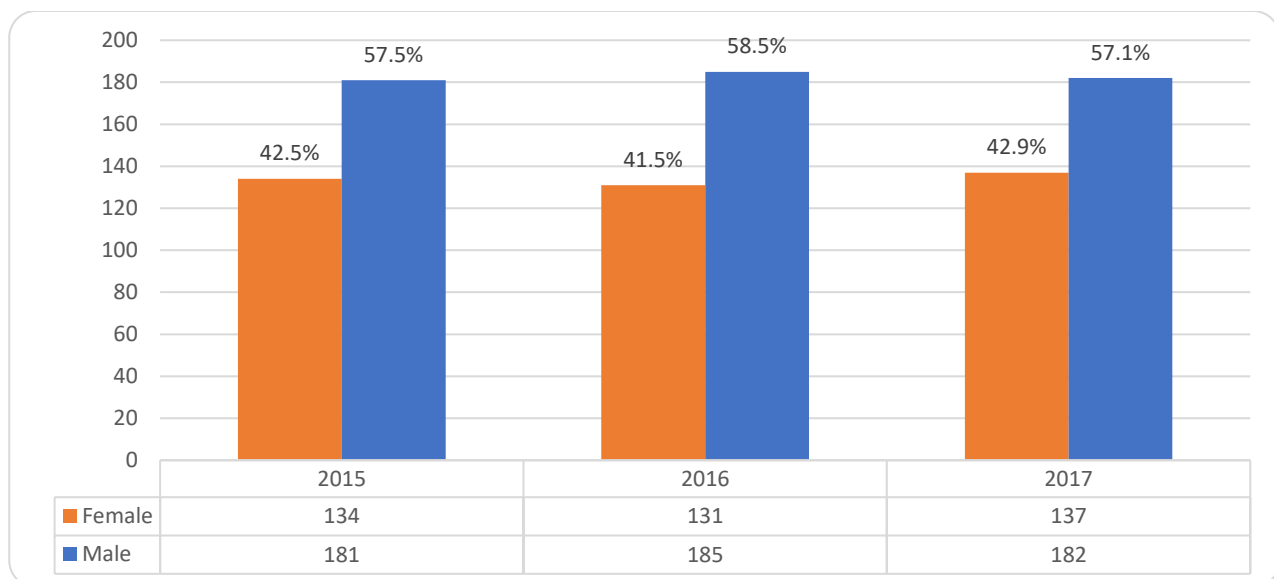


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 – 2017

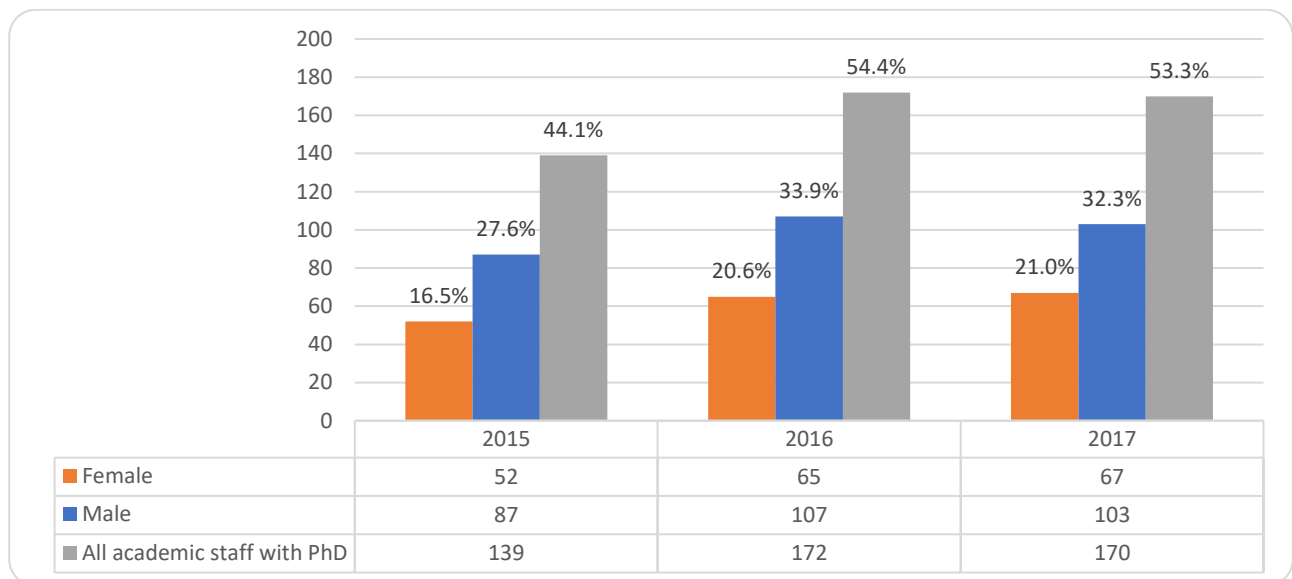


Figure 16: Professors as a % of all academic staff, 2015 – 2017

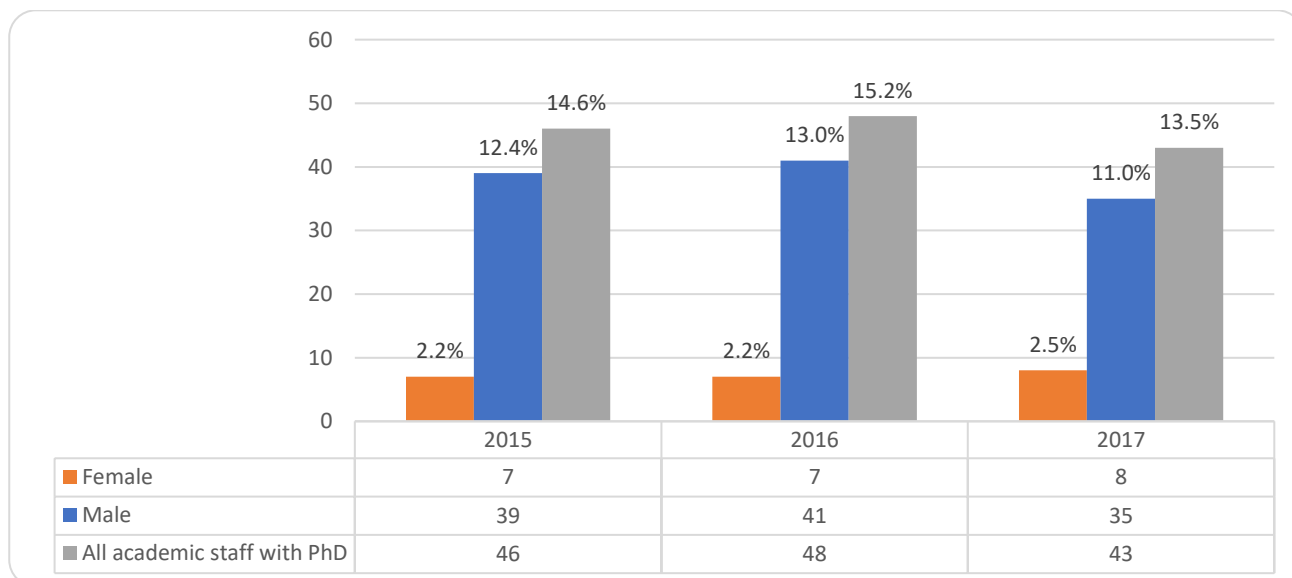


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

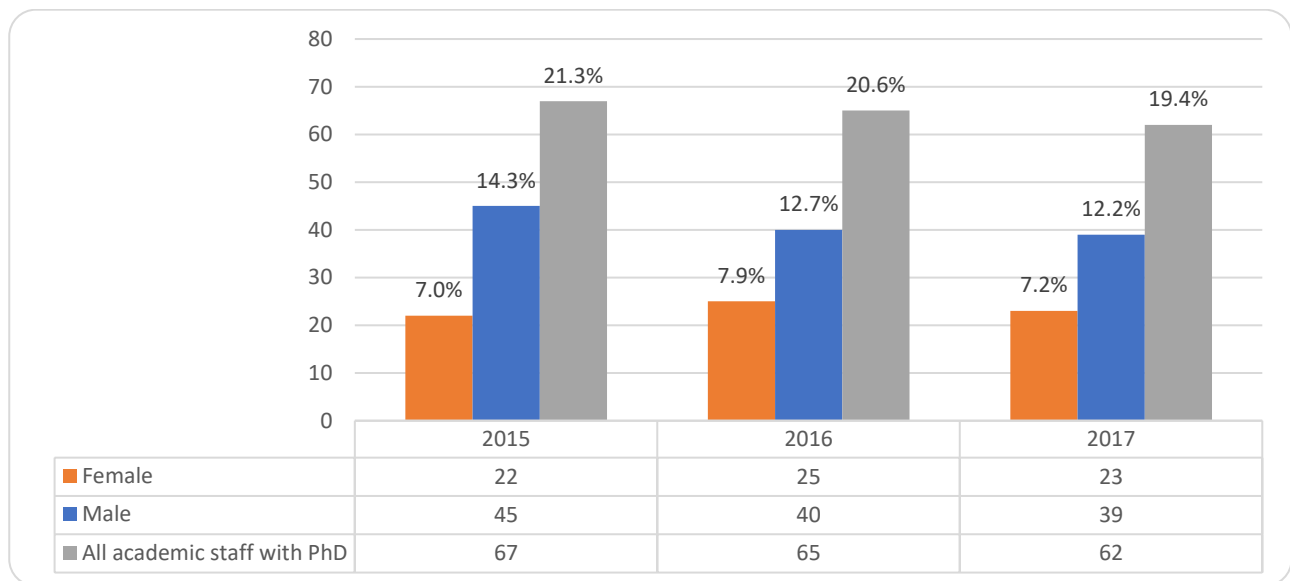


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

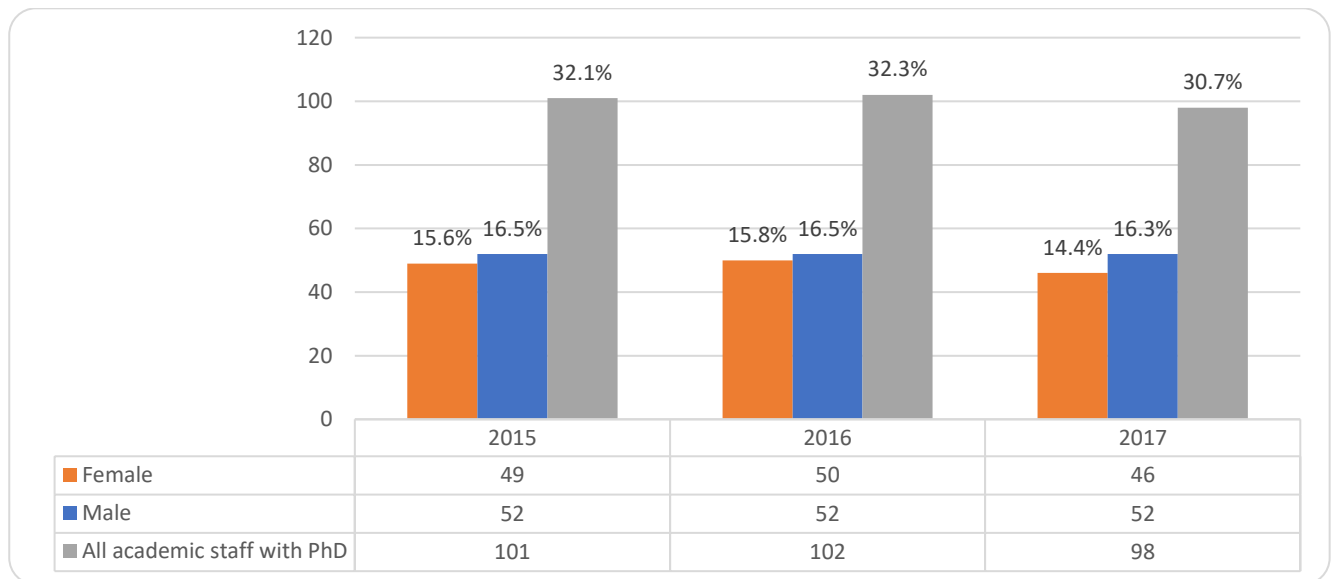


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

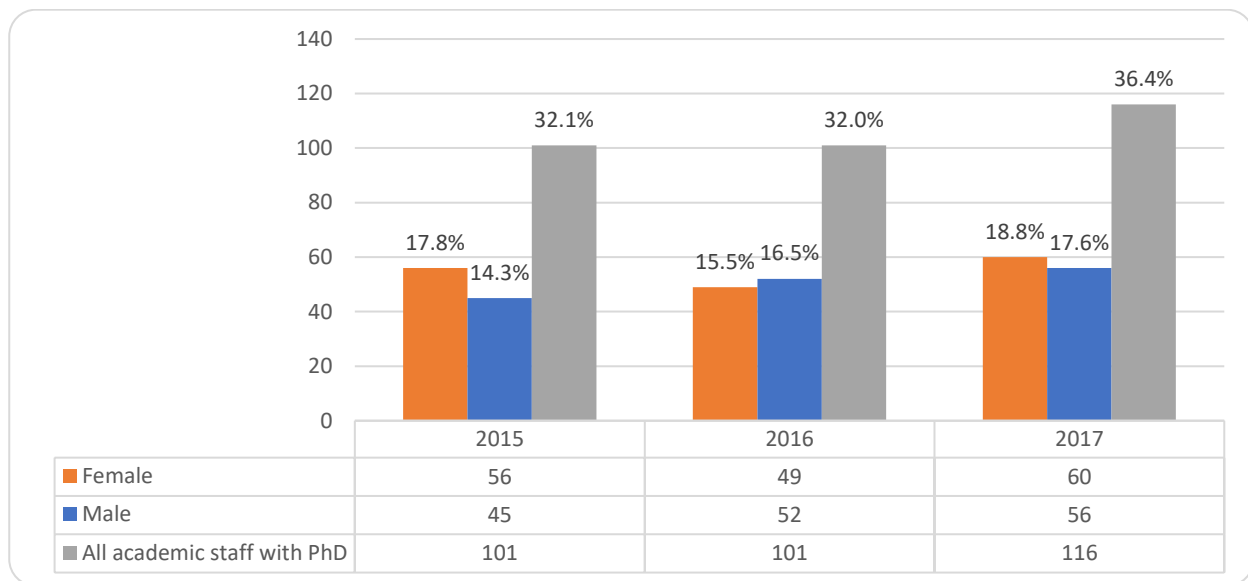


Figure 20: Professors by gender, 2015 – 2017

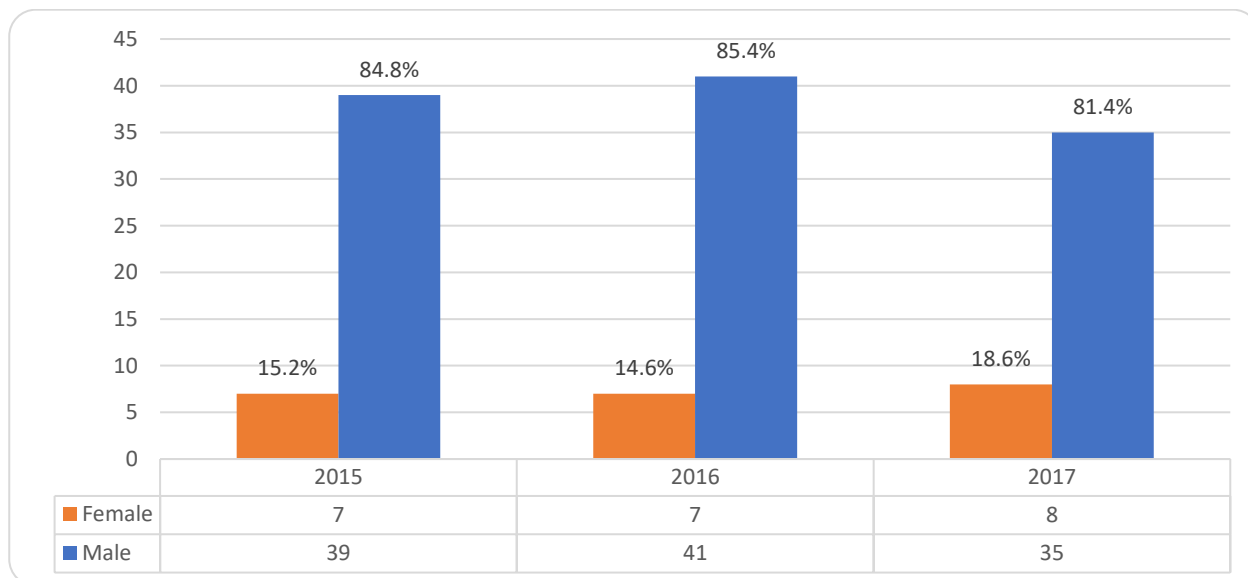


Figure 21: Associate Professors by gender, 2015 – 2017

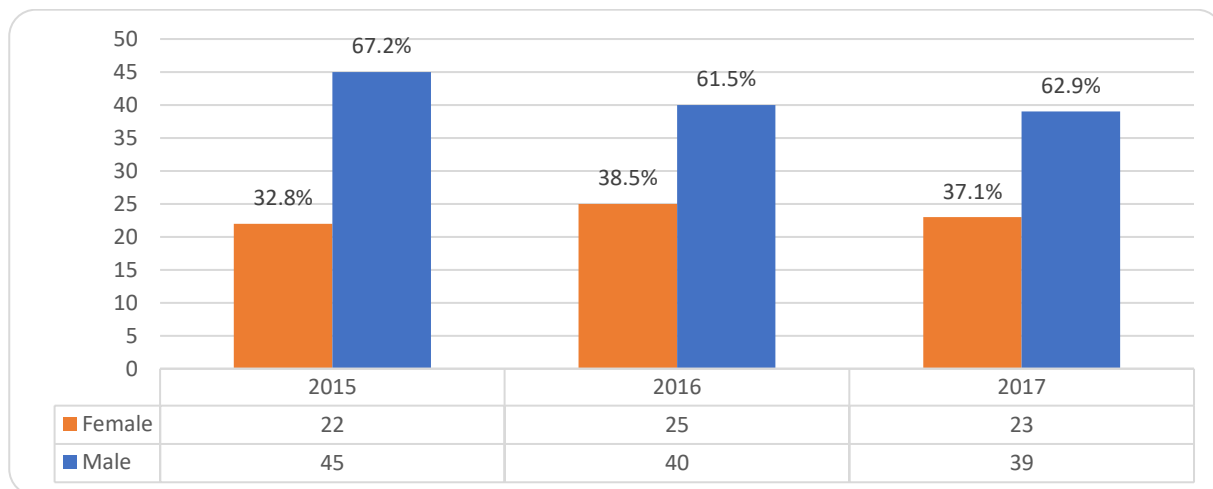


Figure 22: Senior lecturers by gender, 2015 – 2017

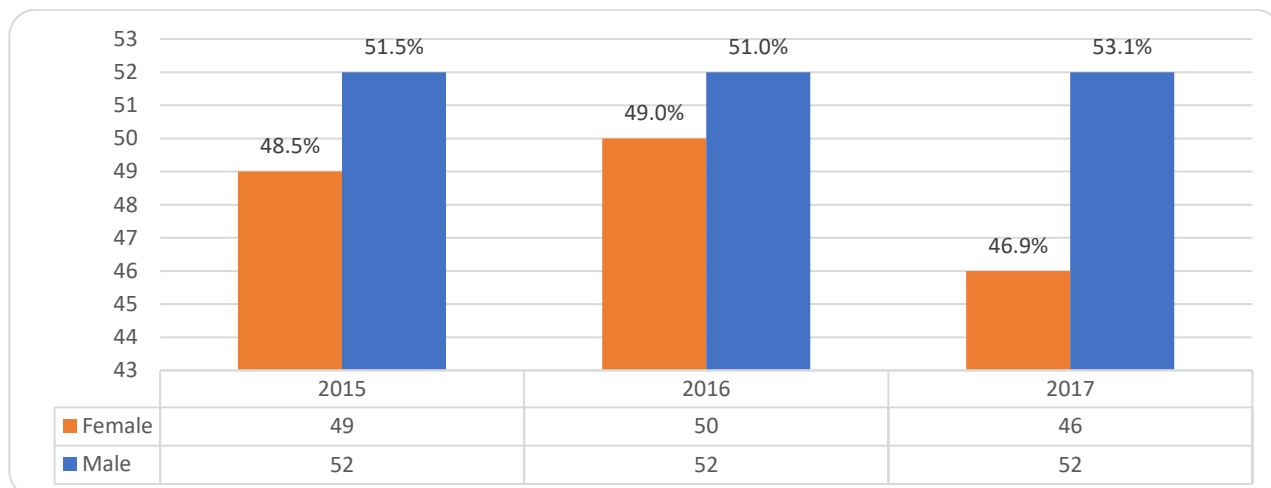


Figure 23: Lecturers & other by gender, 2015 – 2017

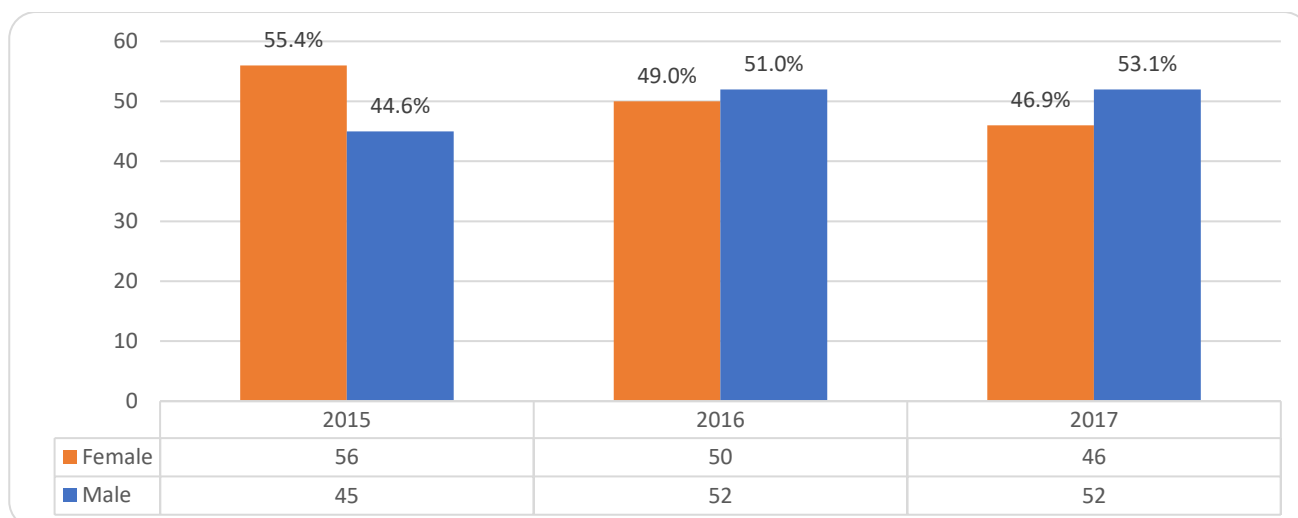


Figure 24: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

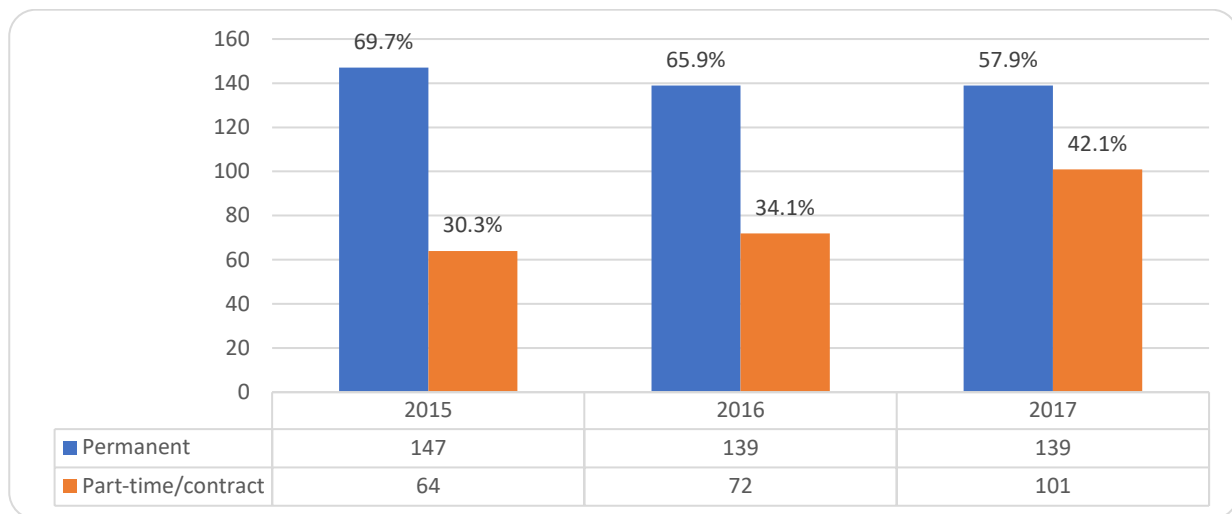


Table 1: Postdoctoral fellows, 2015 - 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 77 | 90 | 86 |

Figure 25: Research income by source, 2015 – 2017 (US \$)

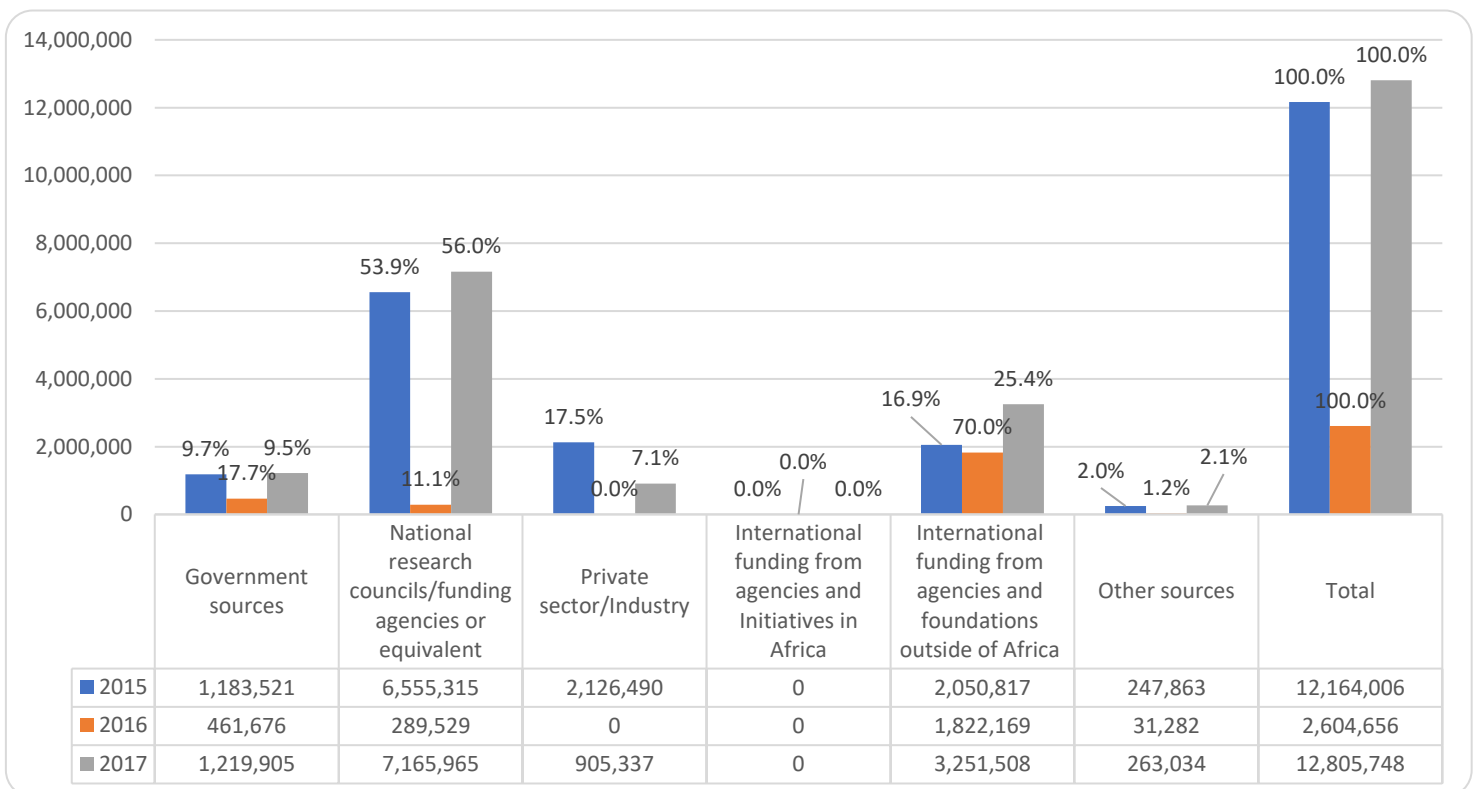


Figure 1: UG vs. PG enrolment, 2015 – 2017

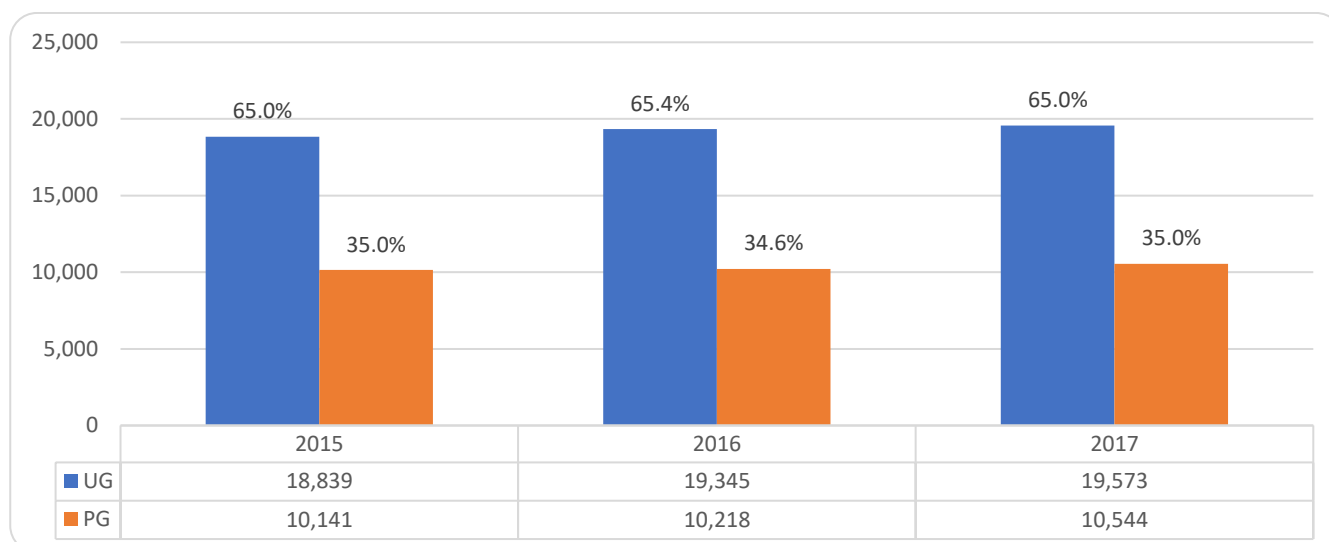


Table 1: Percentage of UG and PG enrolment by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|---------------|---------------|-------------|--------------|--------------|-------------|------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 7.1% | 4.0% | 11.1% | 7.0% | 4.0% | 11.1% | 7.2% | 3.9% | 11.0% |
| Engineering and Technology | 9.6% | 3.0% | 12.6% | 9.5% | 3.0% | 12.5% | 9.7% | 3.0% | 12.7% |
| Medical and Health sciences | 8.2% | 5.9% | 14.1% | 8.2% | 5.7% | 13.9% | 8.2% | 5.9% | 14.1% |
| Agricultural sciences | 4.7% | 2.1% | 6.8% | 4.9% | 2.0% | 6.9% | 4.8% | 2.1% | 6.9% |
| Social sciences | 12.8% | 5.4% | 18.2% | 12.5 % | 5.3% | 17.8% | 11.9% | 5.5% | 17.4% |
| Humanities | 6.8% | 3.4% | 10.2% | 6.6 % | 3.2% | 9.8% | 6.3% | 3.0% | 9.3% |
| Business, Economics and Management Studies | 15.8% | 11.2% | 27.0% | 16.7% | 11.3% | 28.1% | 17.0% | 11.6% | 28.6% |
| Total | 65.0 % | 35.0 % | 100% | 65.4% | 34.6% | 100% | 65% | 35.0% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 – 2017

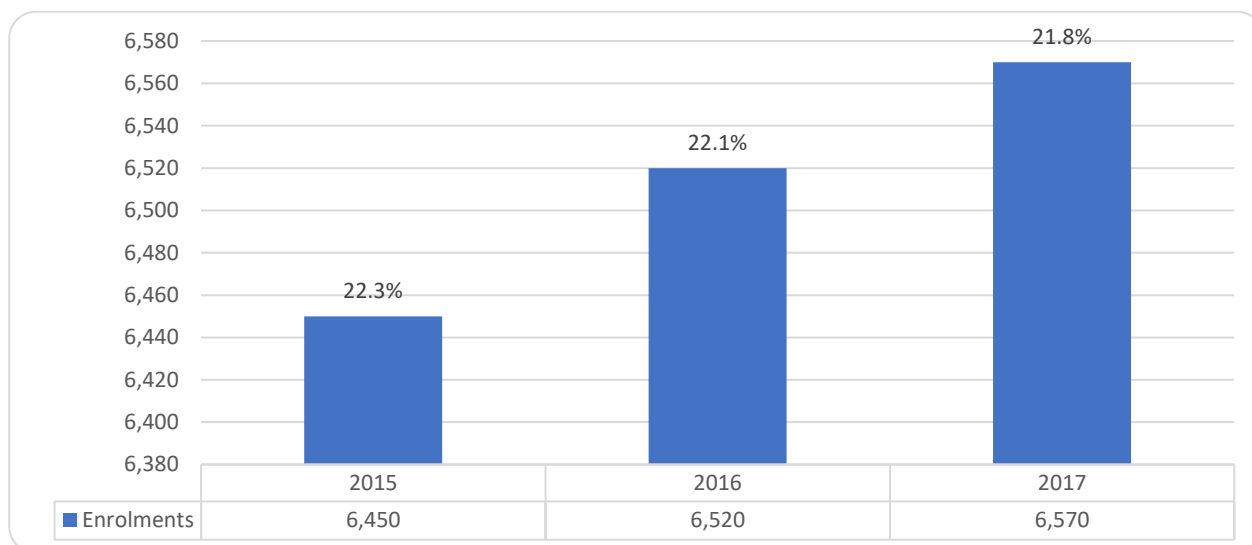


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 2.8% | 2.9% | 2.7% |
| Engineering and Technology | 2.9% | 2.9% | 2.9% |
| Medical and Health sciences | 3.9% | 3.9% | 4.1% |
| Agricultural sciences | 1.9% | 1.8% | 1.9% |
| Social sciences | 2.7% | 2.6% | 2.7% |
| Humanities | 2.4% | 2.1% | 2.1% |
| Business, Economics and Management Studies | 5.7% | 5.7% | 5.4% |
| Total | 22.3% | 22.1% | 21.8% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

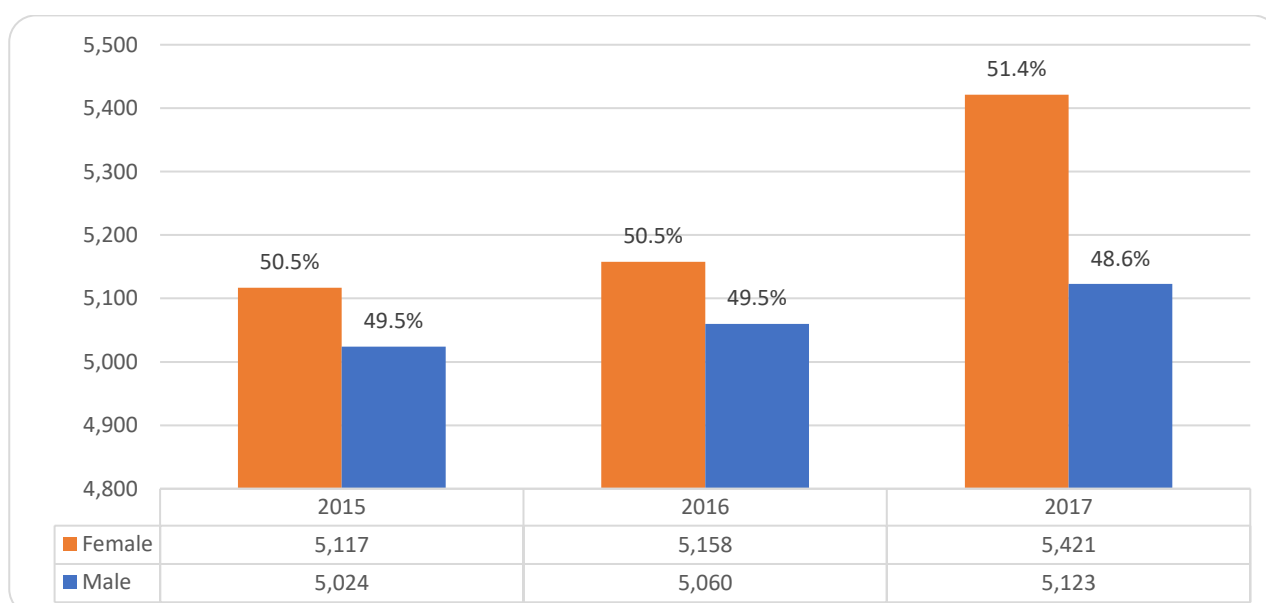


Figure 4: Master’s enrolments by gender, 2015 – 2017

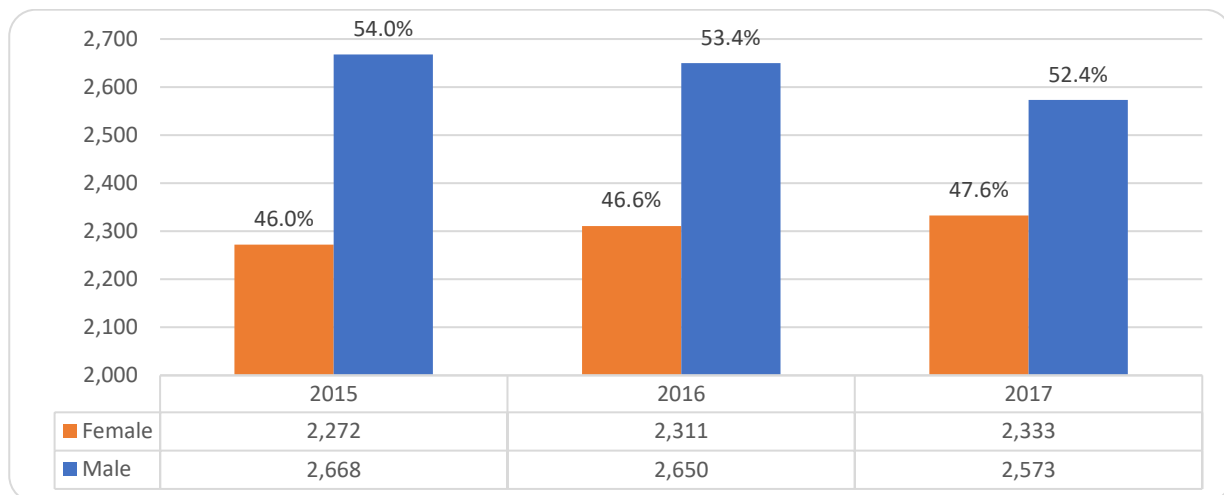
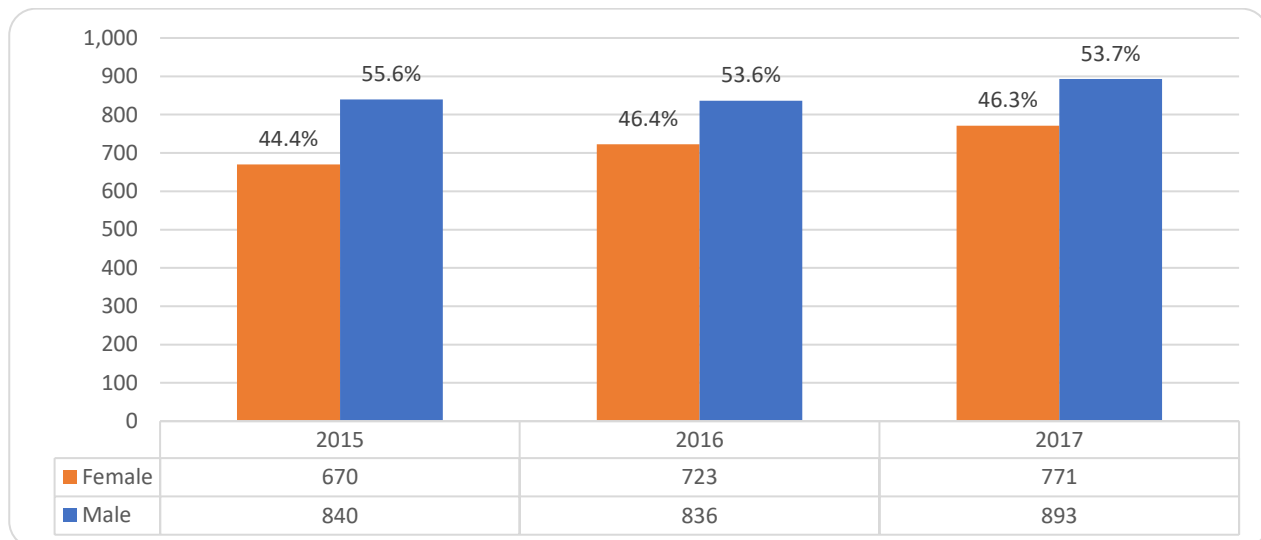


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG and PG graduates as a % of total graduates (UG & PG), 2015 – 2017

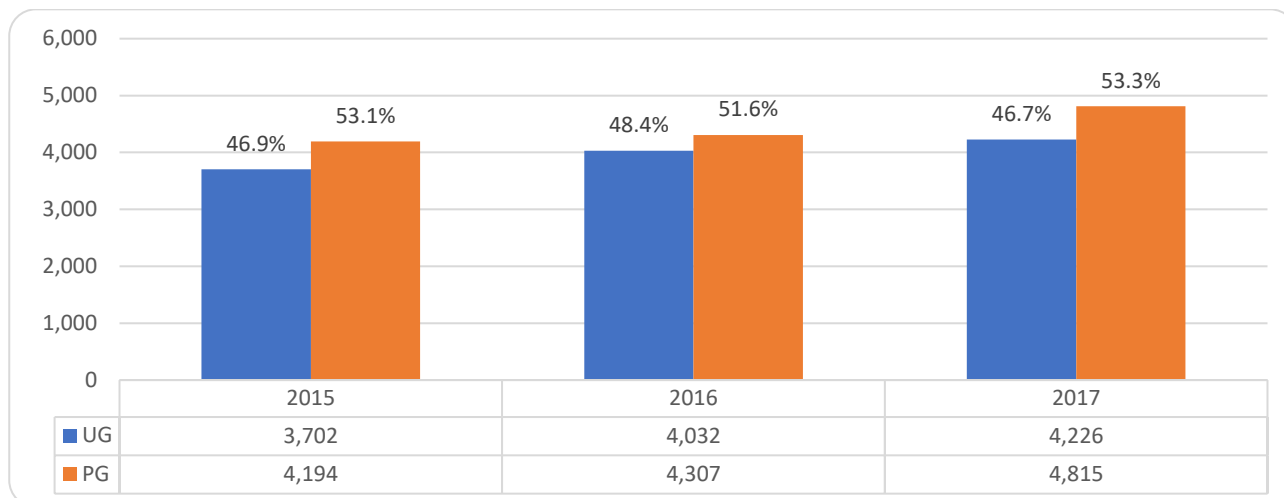


Table 3: UG and PG graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|-------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 5.5% | 6.2% | 11.8% | 5.8% | 5.9% | 11.7% | 5.3% | 5.6% | 10.9% |
| Engineering and Technology | 6.2% | 3.5% | 9.7% | 5.9% | 3.2% | 9.1% | 5.8% | 3.0% | 8.8% |
| Medical and Health sciences | 4.7% | 7.8% | 12.5% | 4.5% | 7.5% | 12.0% | 4.1% | 7.4% | 11.5% |
| Agricultural sciences | 2.8% | 2.6% | 5.4% | 3.5% | 2.0% | 5.5% | 3.0% | 2.3% | 5.3% |
| Social sciences | 9.5% | 8.9% | 18.4% | 9.5% | 8.4% | 17.9% | 9.0% | 8.7% | 12.4% |
| Humanities | 5.0% | 4.8% | 9.8% | 5.5% | 4.9% | 10.4% | 5.7% | 4.3% | 15.4% |
| Business, Economics and Management Studies | 13.2% | 19.2% | 32.4% | 13.6% | 19.8% | 33.4% | 13.9% | 21.8% | 35.7% |
| Total | 46.9% | 53.1% | 100% | 48.4% | 51.6% | 100.0% | 46.7% | 53.3% | 100.0% |

Figure 7: M & D graduates as a % of total (UG & PG) graduates, 2015 – 2017

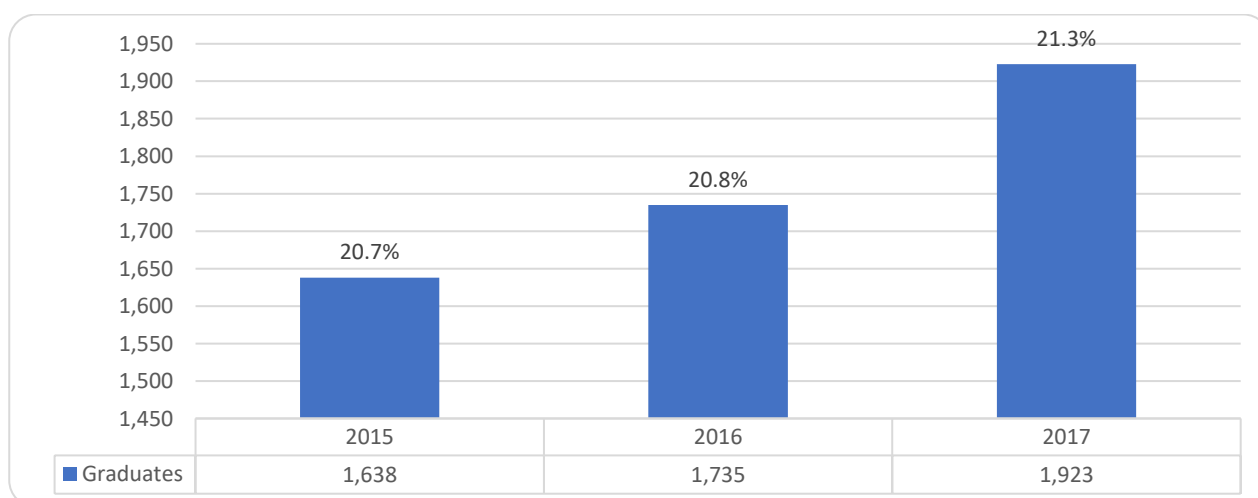


Table 4: M & D per study field as a % of total graduates (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 2.7% | 2.9% | 2.6% |
| Engineering and Technology | 3.3% | 3.0% | 2.8% |
| Medical and Health sciences | 2.7% | 2.7% | 2.9% |
| Agricultural sciences | 2.1% | 1.6% | 1.7% |
| Social sciences | 2.4% | 2.3% | 2.3% |
| Humanities | 2.3% | 2.2% | 2.1% |
| Business, Economics and Management Studies | 5.3% | 6.0% | 7.0% |
| Total | 20.7% | 20.8% | 21.3% |

Figure 8: PhD graduates as a % of total graduates (UG & PG), 2015 – 2017

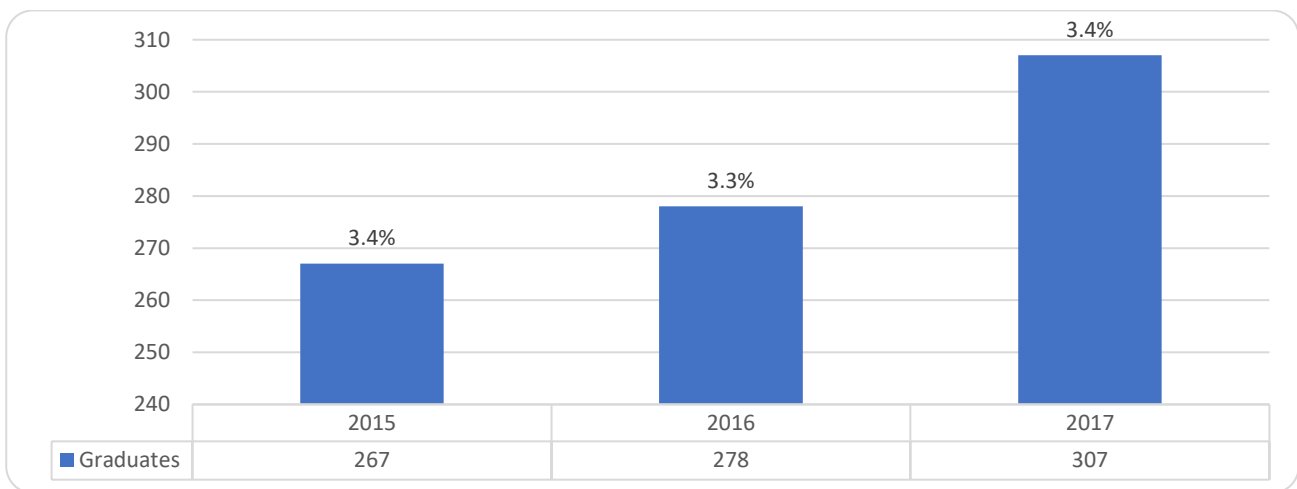


Figure 9: Postgraduate graduates by gender, 2015 – 2017

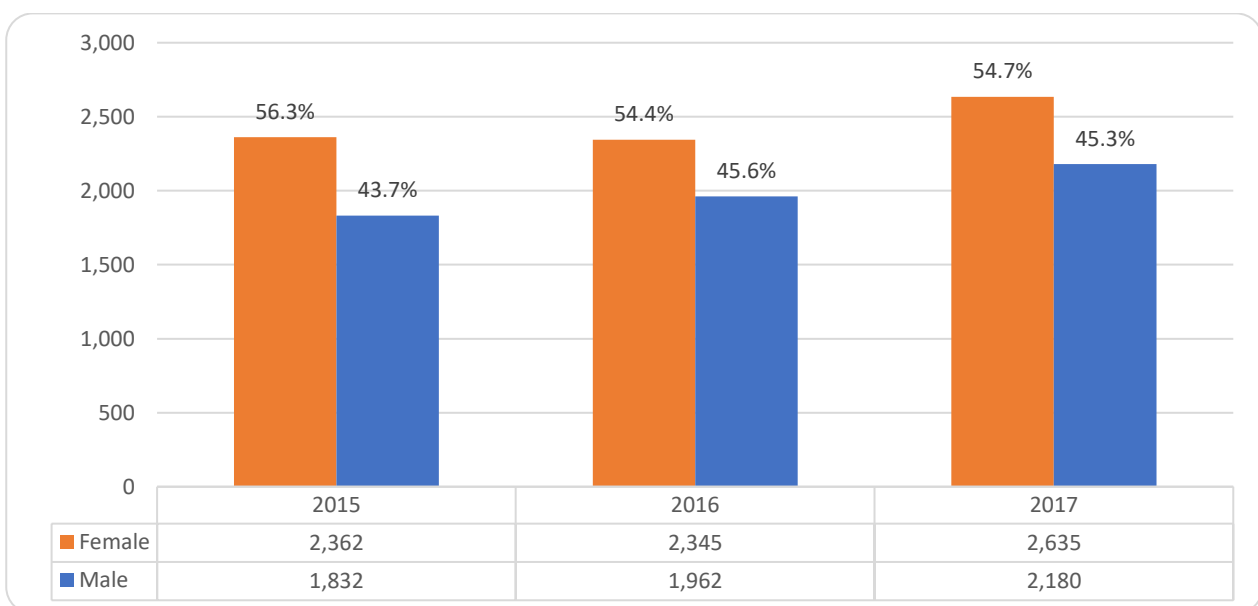


Figure 10: Master’s graduates by gender, 2015 – 2017

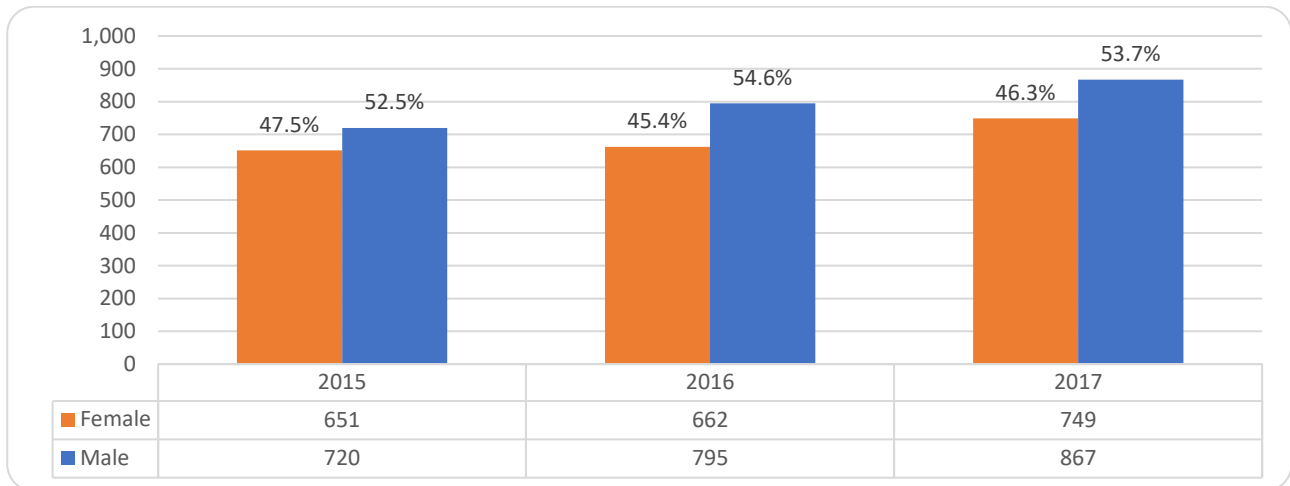


Figure 11: PhD graduates by gender, 2015 – 2017

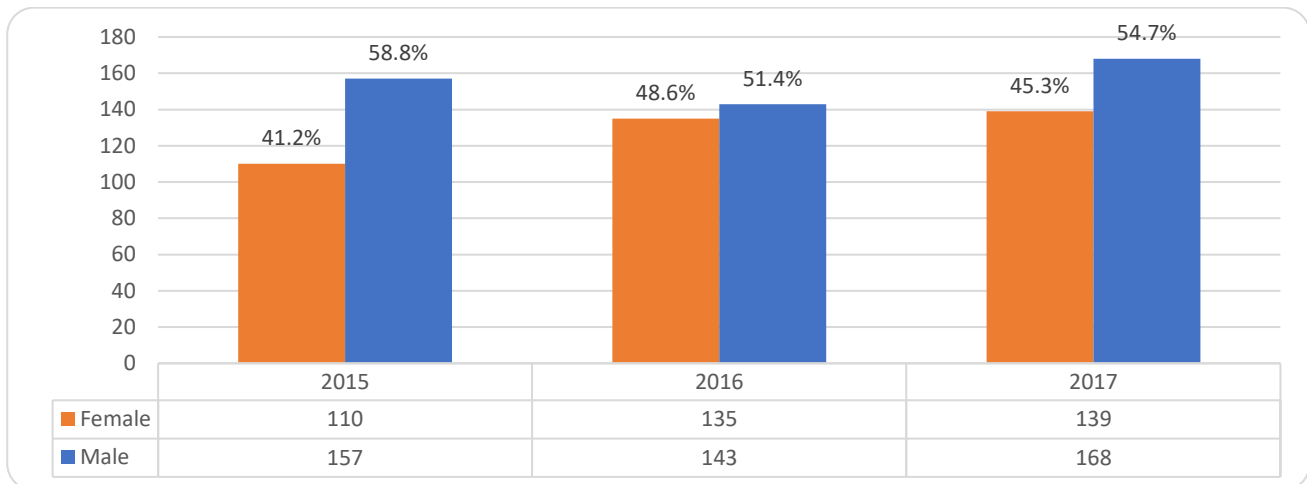
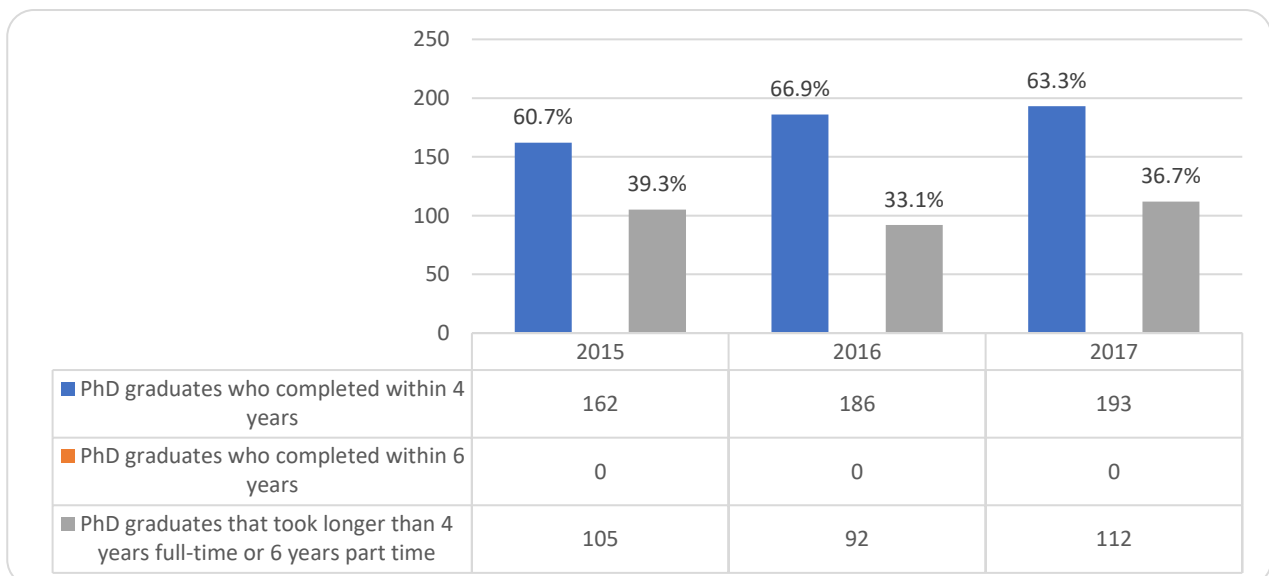


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

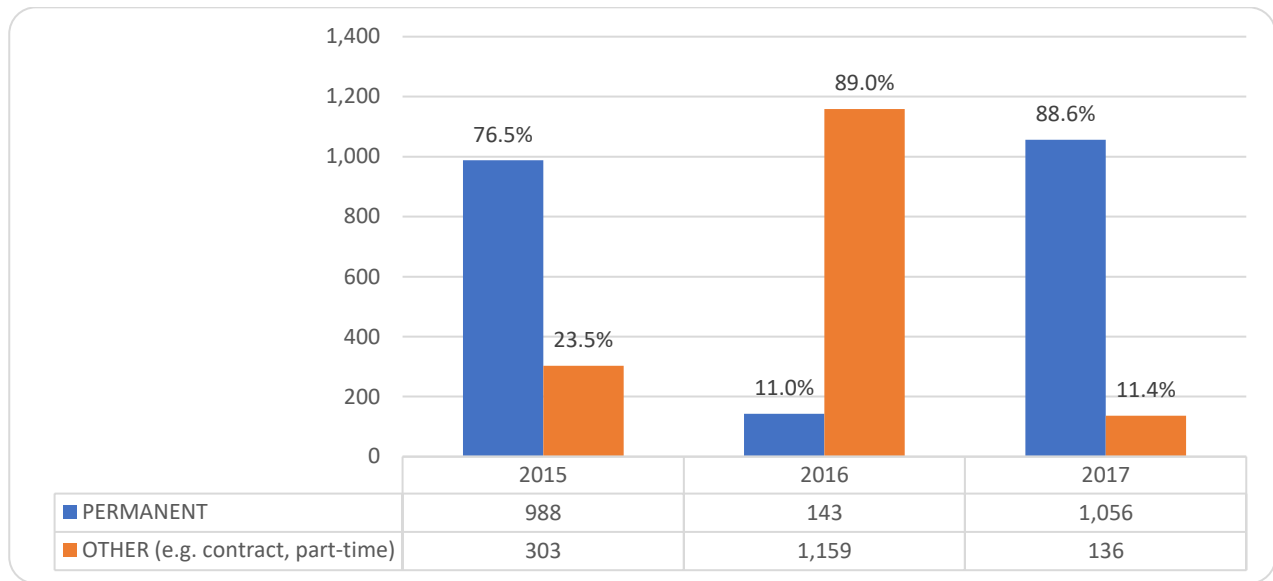


Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 – 2017

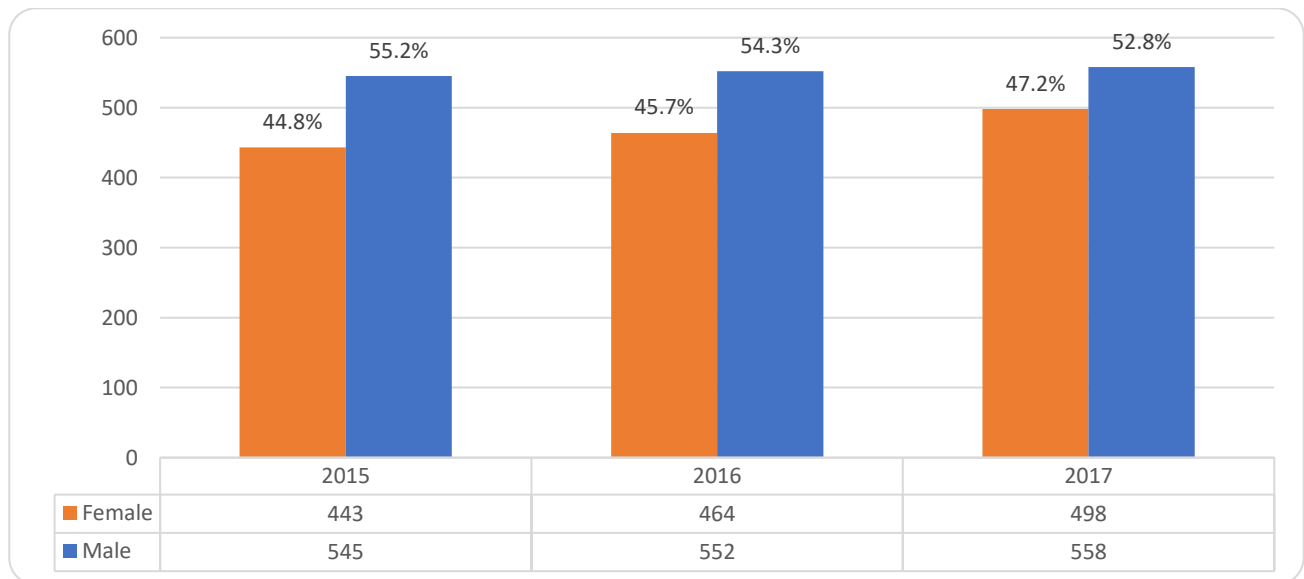


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 – 2017

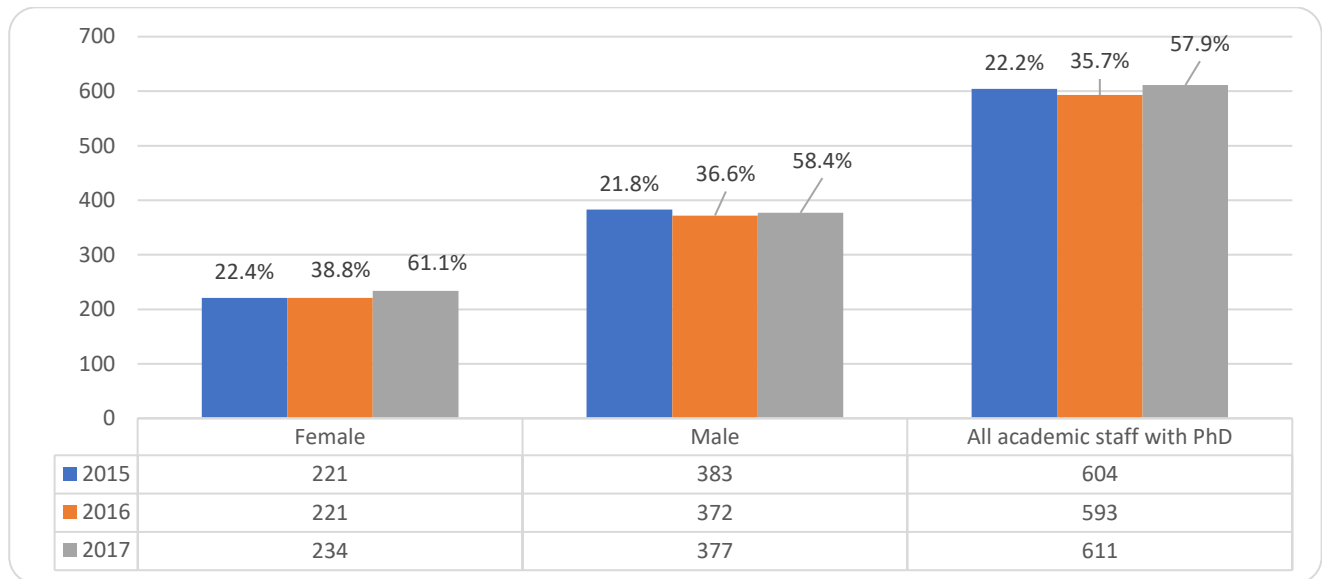


Figure 16: Professors as a % of all academic staff, 2015 – 2017

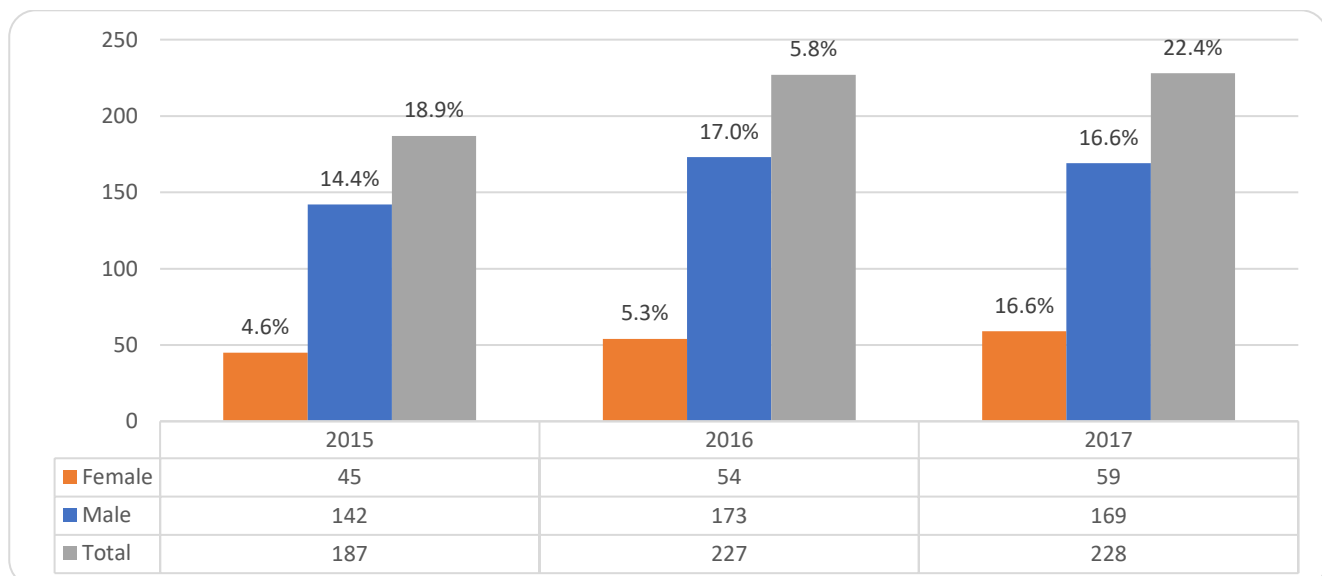


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

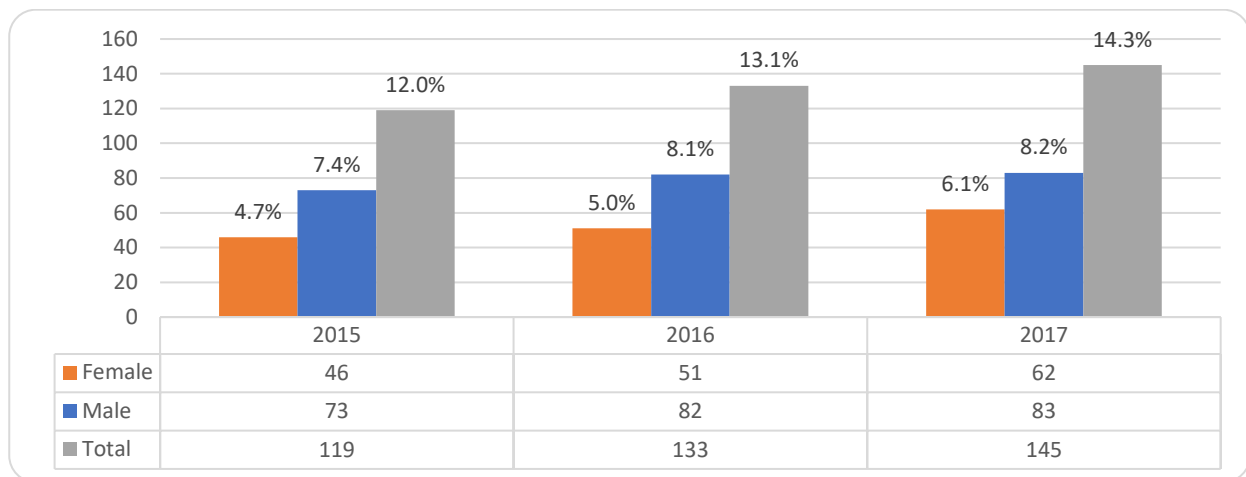


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

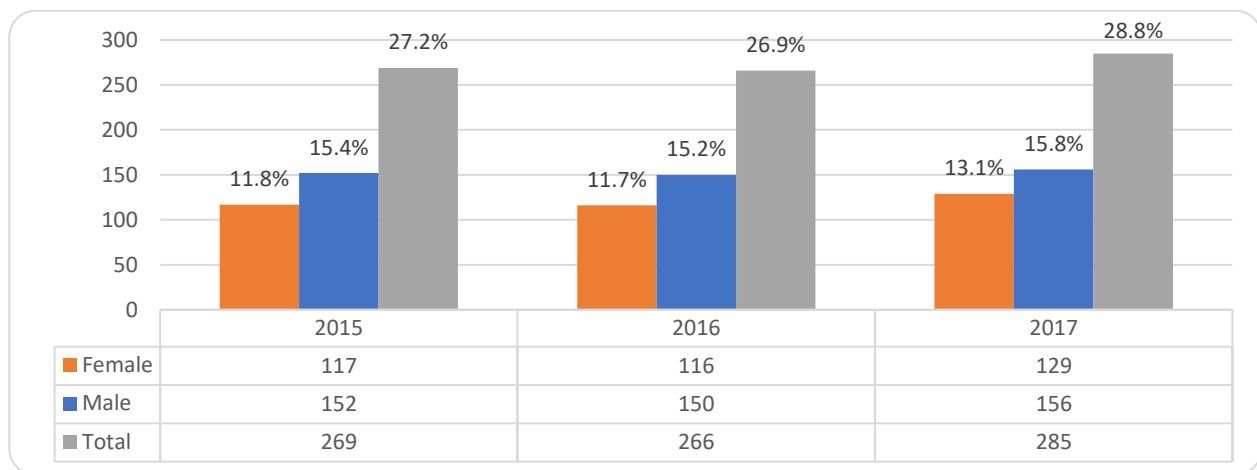


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

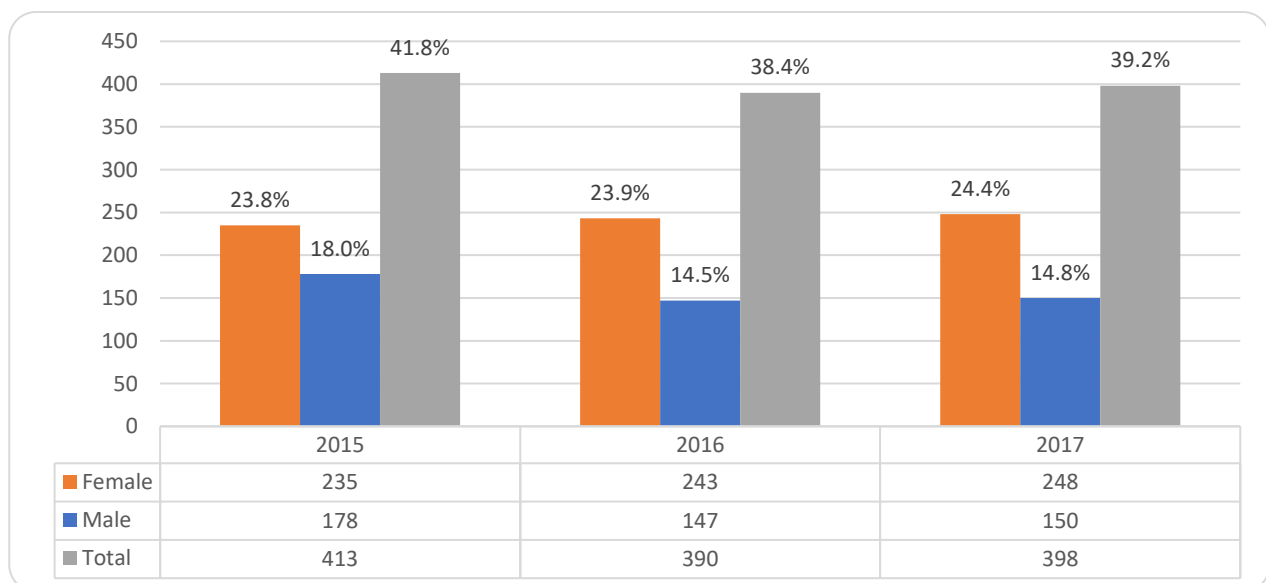


Figure 20: Professors by gender, 2015 – 2017

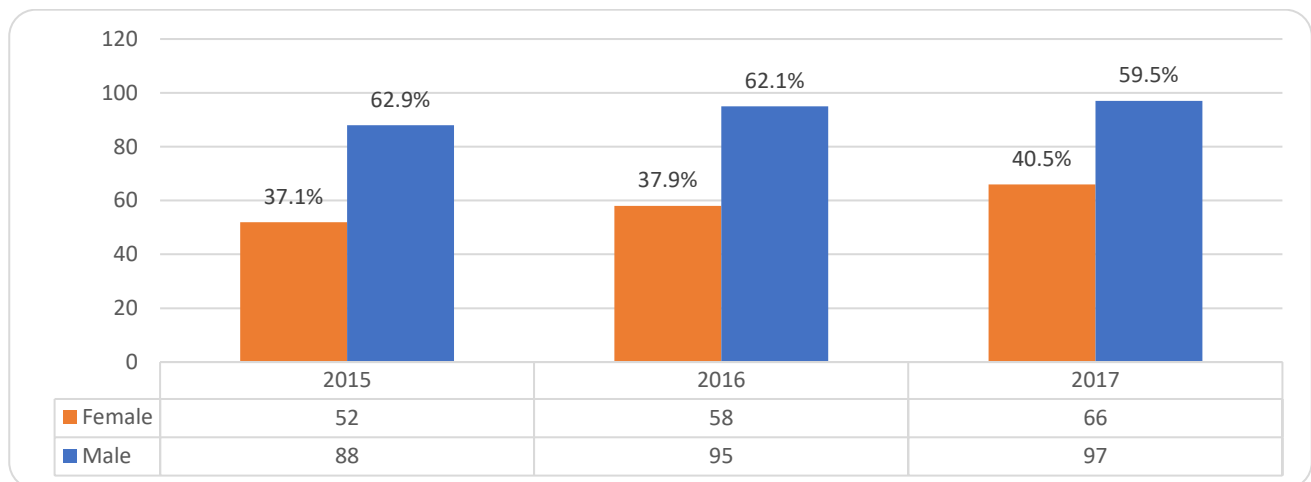


Figure 21: Associate Professors by gender, 2015 – 2017

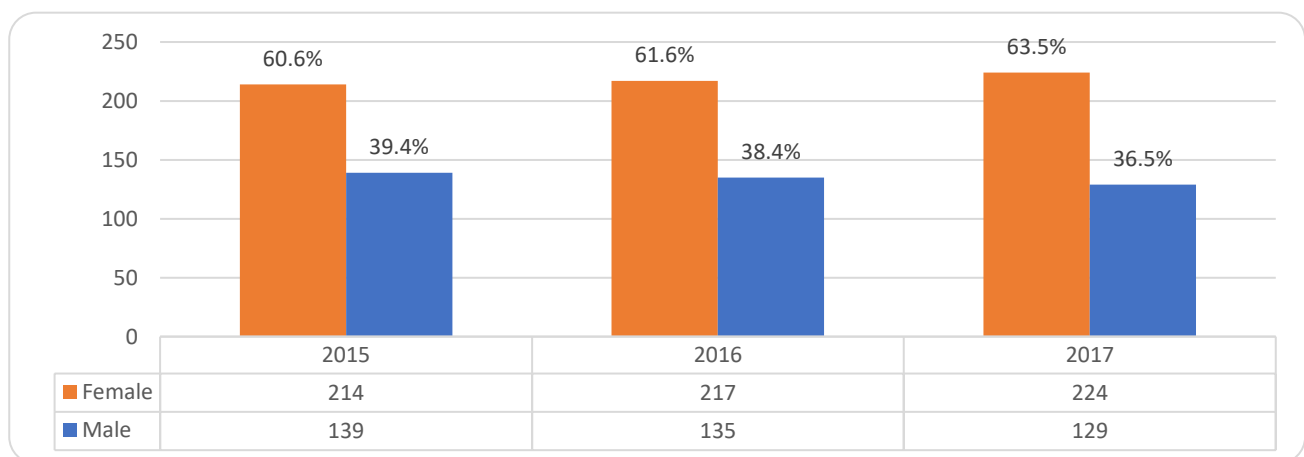


Figure 22: Senior lecturers by gender, 2015 – 2017

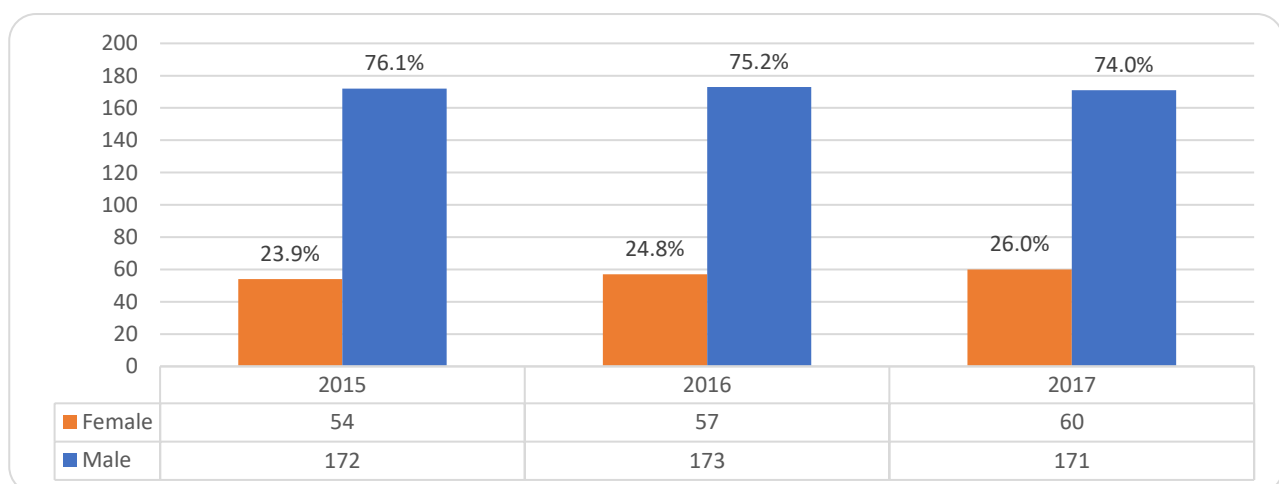


Figure 23: Lecturers & other by gender, 2015 – 2017

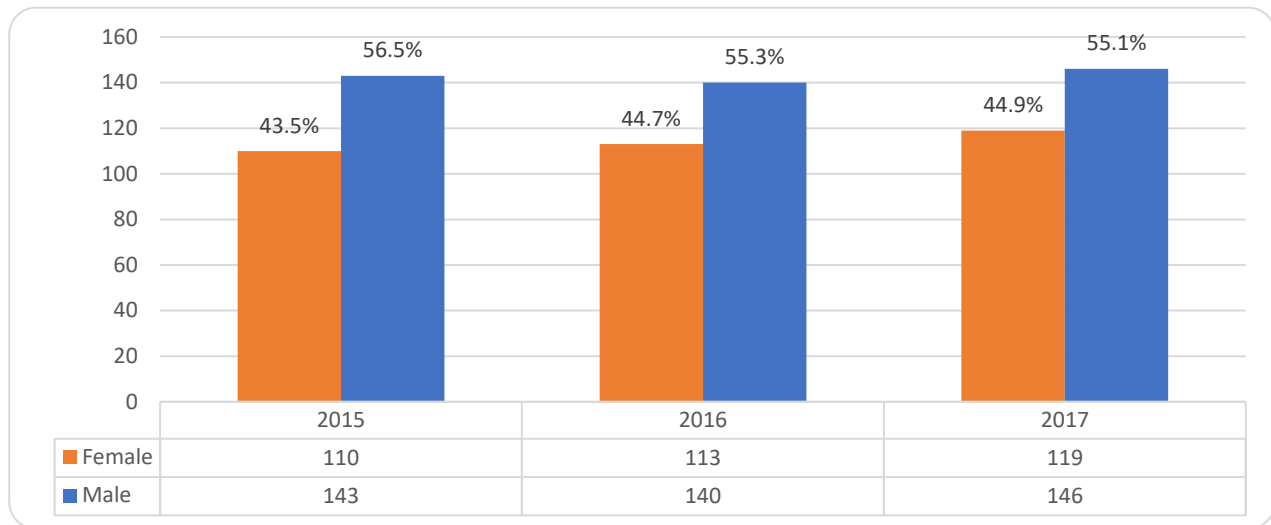


Figure 24: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

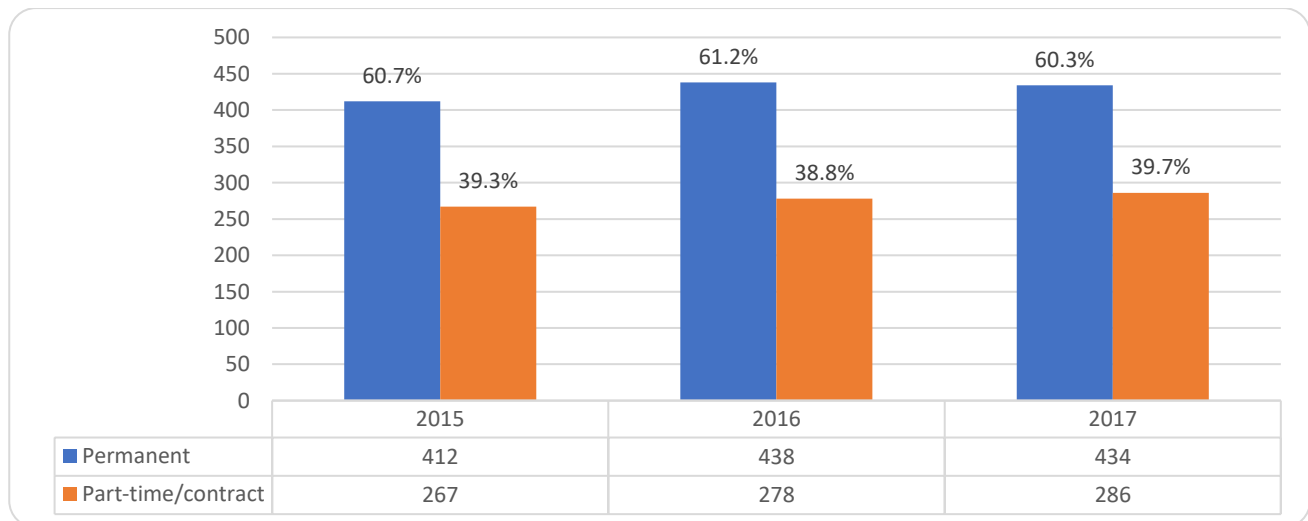


Table 5: Postdoctoral fellows, 2015 - 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 285 | 304 | 329 |

Figure 25: Research income, 2015 – 2017

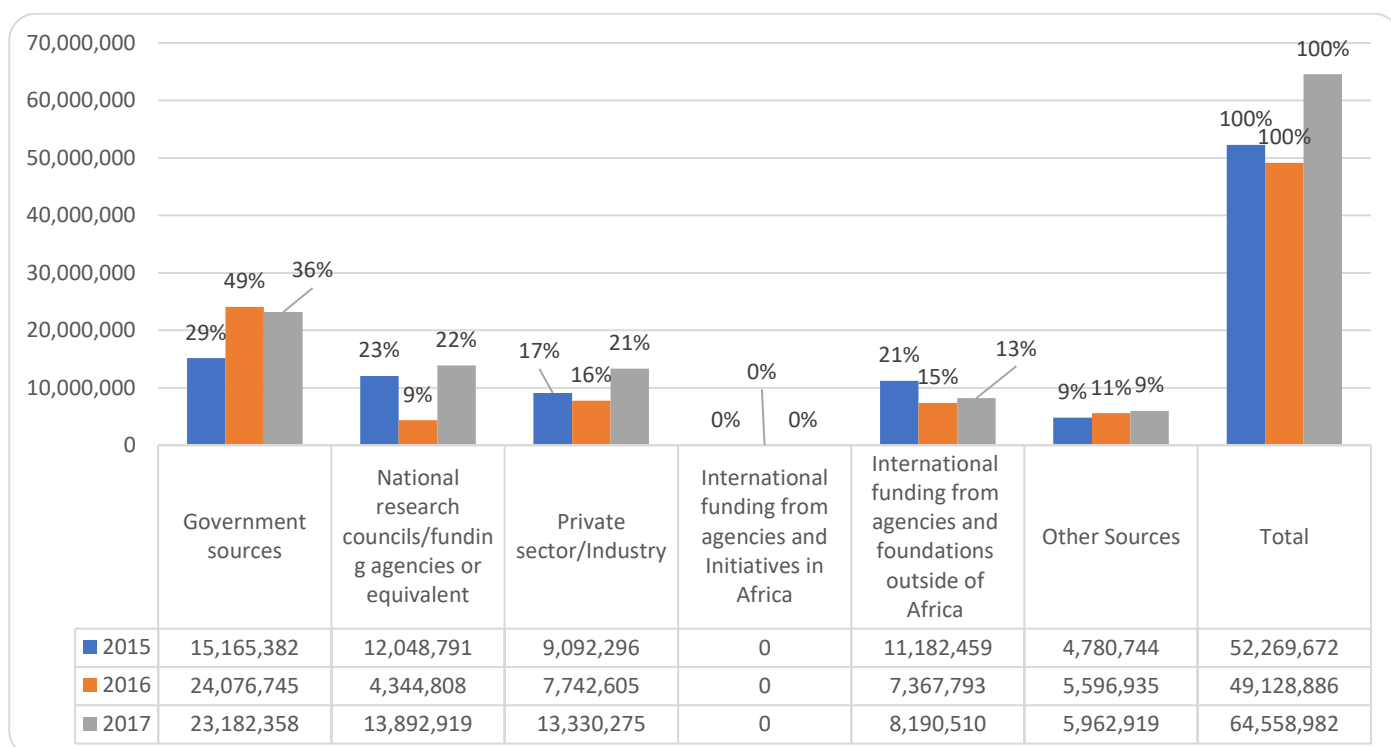


Table 6: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | 21 | 22 | 46 |

Student enrolments

Figure 1: UG vs. PG enrolment, 2015 – 2017

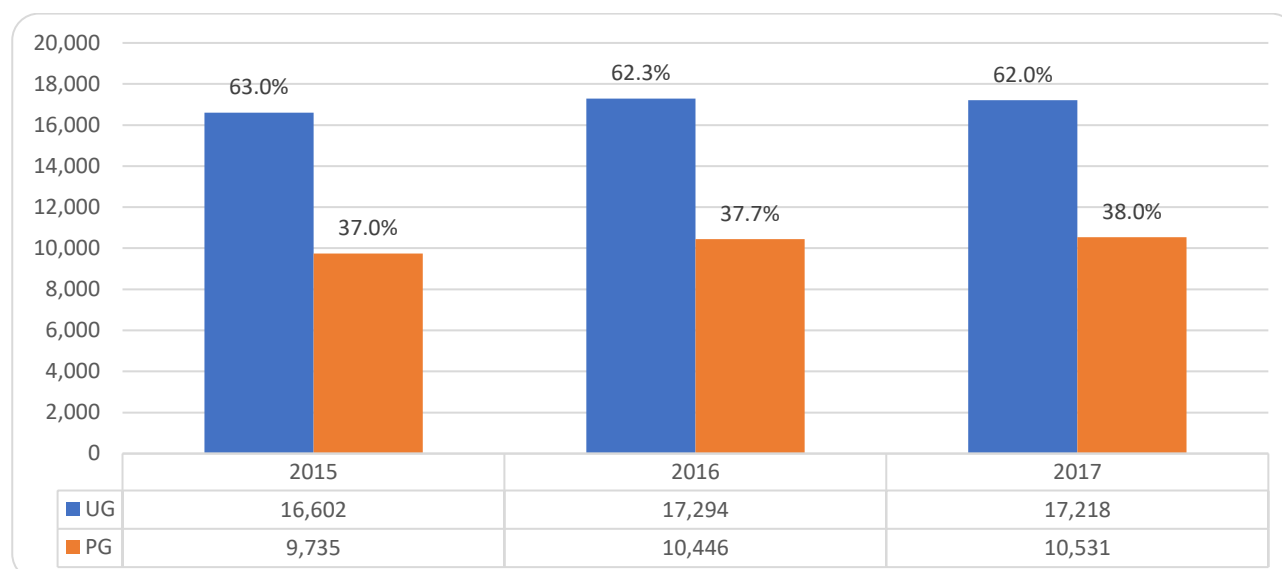


Table 1: Percentage of UG and PG enrolment by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|-------------|--------------|--------------|-------------|--------------|--------------|-------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 7.4% | 5.4% | 12.8% | 8.2% | 5.3% | 13.5% | 7.5% | 5.3% | 12.9% |
| Engineering and Technology | 11.2% | 5.2% | 16.4% | 11.3% | 5.2% | 16.6% | 11.7% | 5.6% | 17.3% |
| Medical and Health sciences | 9.5% | 8.3% | 17.7% | 9.9% | 8.6% | 18.4% | 10.3% | 9.0% | 19.2% |
| Agricultural sciences | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Social sciences | 7.6% | 5.9% | 13.5% | 8.3% | 6.1% | 14.4% | 8.7% | 5.9% | 14.6% |
| Humanities | 8.7% | 2.4% | 11.2% | 8.4% | 2.5% | 10.9% | 8.1% | 2.4% | 10.5% |
| Business, Economics and Management Studies | 18.7% | 9.7% | 28.4% | 16.2% | 10.0% | 26.2% | 15.7% | 9.8% | 25.5% |
| Total | 63.0% | 37.0% | 100% | 62.3% | 37.7% | 100% | 62.0% | 38.0% | 100% |

Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 – 2017

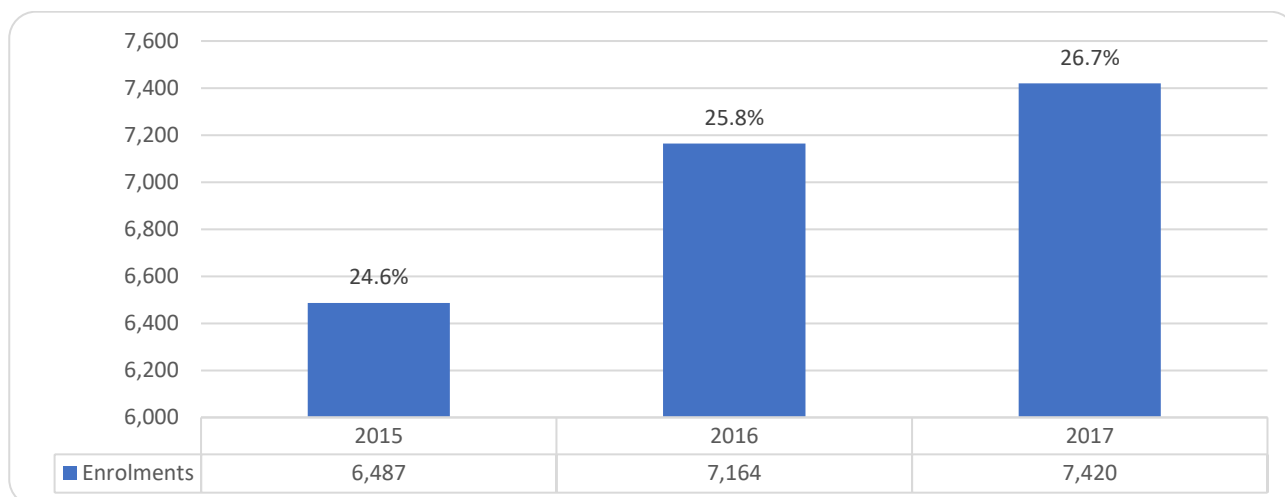


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 3.8% | 3.8% | 3.9% |
| Engineering and Technology | 4.6% | 4.5% | 4.8% |
| Medical and Health sciences | 6.6% | 7.0% | 7.4% |
| Agricultural sciences | 0.0% | 0.0% | 0.0% |
| Social sciences | 3.8% | 4.3% | 4.3% |
| Humanities | 1.5% | 1.7% | 1.5% |
| Business, Economics and Management Studies | 4.3% | 4.6% | 4.9% |
| Total | 24.6% | 25.8% | 26.7% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

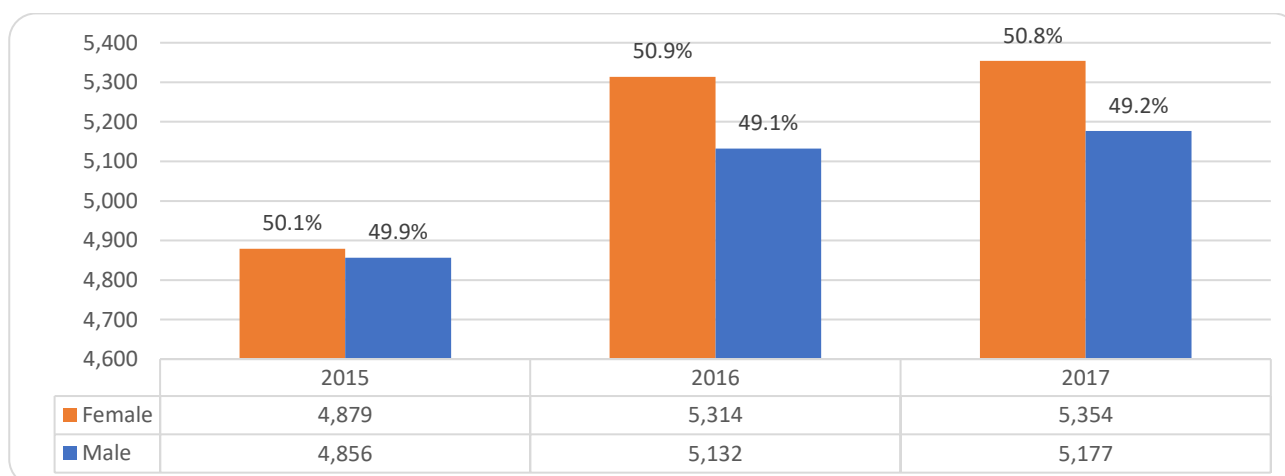


Figure 4: Master’s enrolments by gender, 2015 – 2017

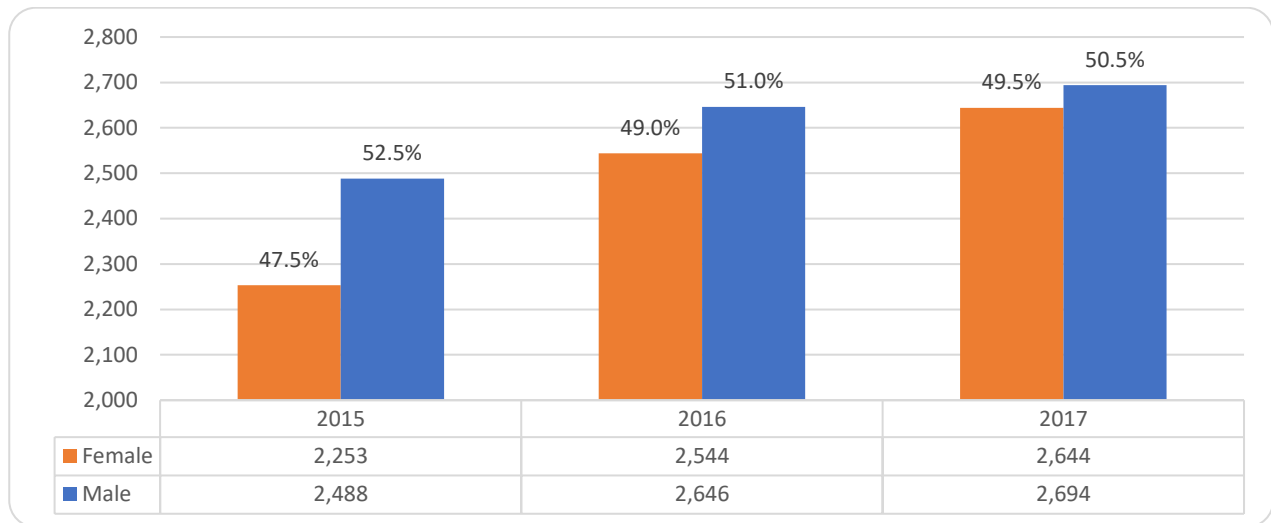
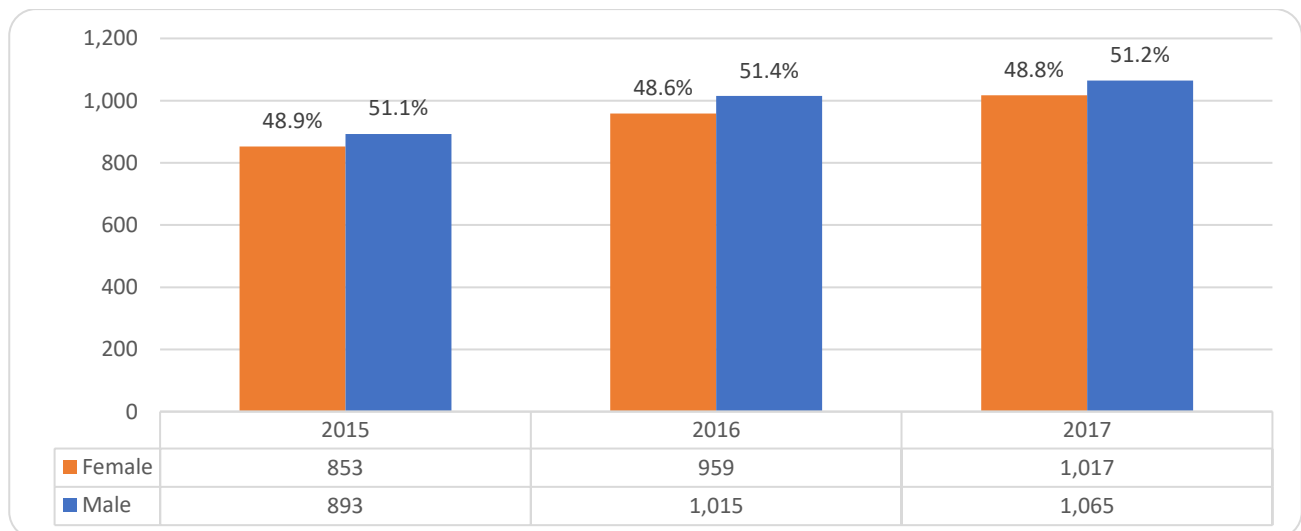


Figure 5: PhD enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG vs. PG graduates, 2015 – 2017

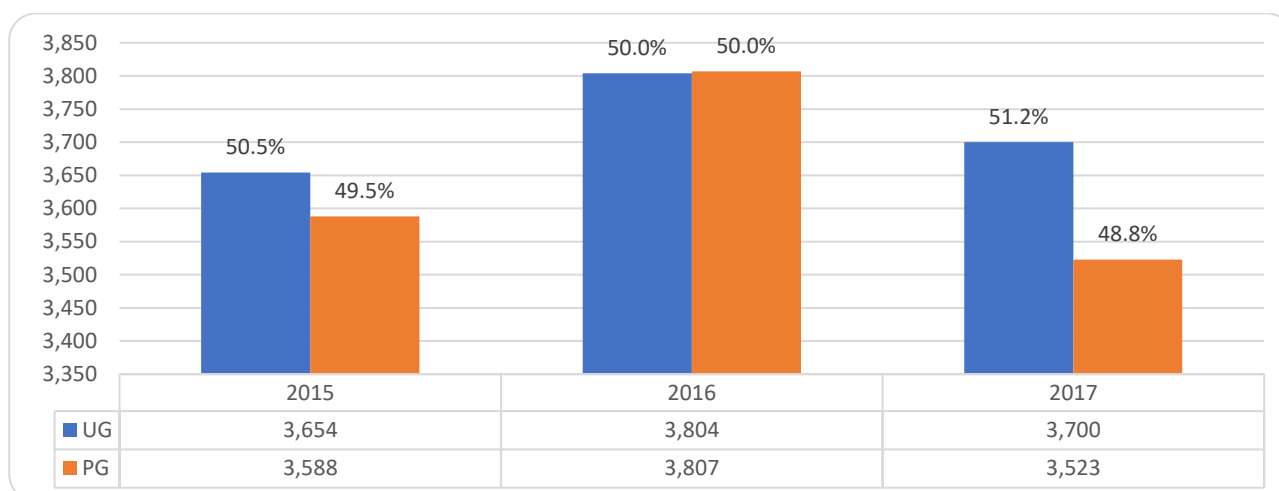


Table 3: UG vs. PG graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|-------------|--------------|--------------|-------------|--------------|--------------|-------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 8.1% | 7.4% | 15.5% | 8.9% | 7.3% | 16.3% | 8.5% | 7.0% | 15.5% |
| Engineering and Technology | 7.9% | 5.1% | 13.0% | 7.6% | 4.4% | 12.1% | 7.5% | 5.3% | 12.8% |
| Medical and Health sciences | 5.7% | 7.9% | 13.7% | 6.1% | 8.5% | 14.6% | 6.5% | 7.4% | 14.0% |
| Agricultural sciences | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Social sciences | 6.9% | 8.7% | 15.7% | 7.7% | 9.6% | 17.2% | 7.0% | 8.0% | 15.1% |
| Humanities | 7.8% | 3.8% | 11.6% | 7.1% | 3.6% | 10.7% | 8.1% | 3.7% | 11.8% |
| Business, Economics and Management Studies | 14.0% | 16.7% | 30.7% | 12.5% | 16.6% | 29.1% | 13.5% | 17.3% | 30.8% |
| Total | 50.5% | 49.5% | 100% | 50.0% | 50.0% | 100% | 51.2% | 48.8% | 100% |

Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

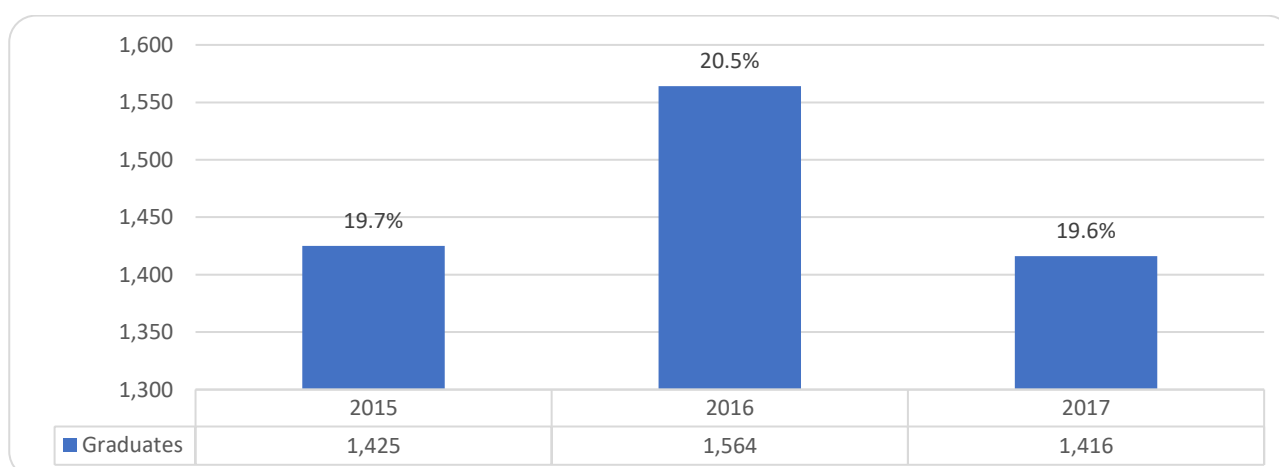


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 – 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 3.2% | 3.0% | 3.2% |
| Engineering and Technology | 3.5% | 2.7% | 3.1% |
| Medical and Health sciences | 3.7% | 4.2% | 3.3% |
| Agricultural sciences | 0.0% | 0.0% | 0.0% |
| Social sciences | 3.1% | 4.6% | 3.5% |
| Humanities | 1.2% | 1.2% | 0.9% |
| Business, Economics and Management Studies | 4.9% | 4.9% | 5.7% |
| Total | 19.7% | 20.5% | 19.6% |

Figure 8: PhD graduates as a % of total graduates (UG and PG), 2015 – 2017

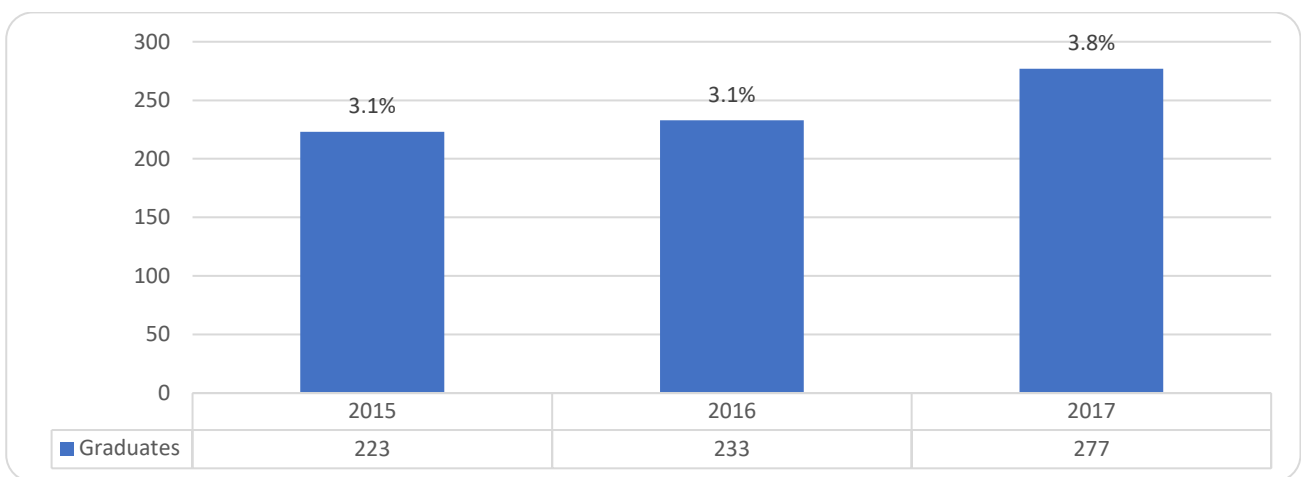


Figure 9: Postgraduate graduates by gender, 2015 – 2017

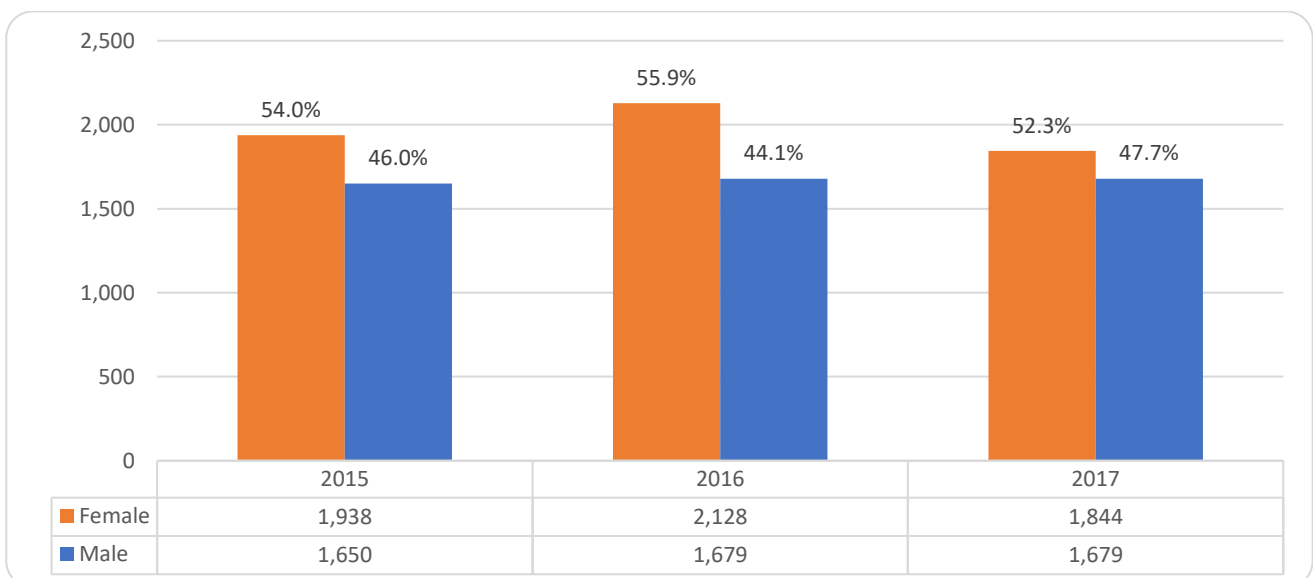


Figure 10: Master’s graduates by gender, 2015 – 2017

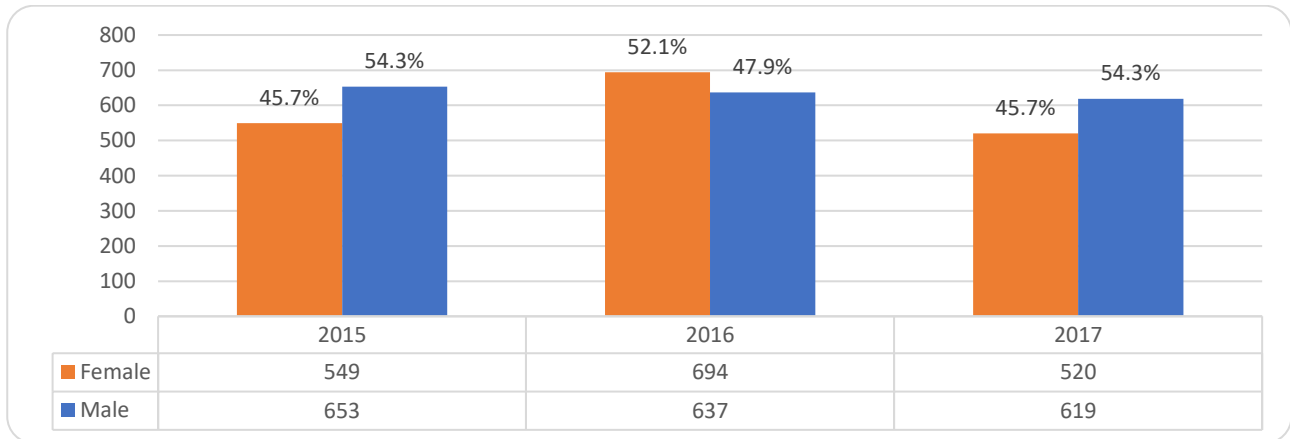


Figure 11: Doctoral graduates by gender, 2015 – 2017

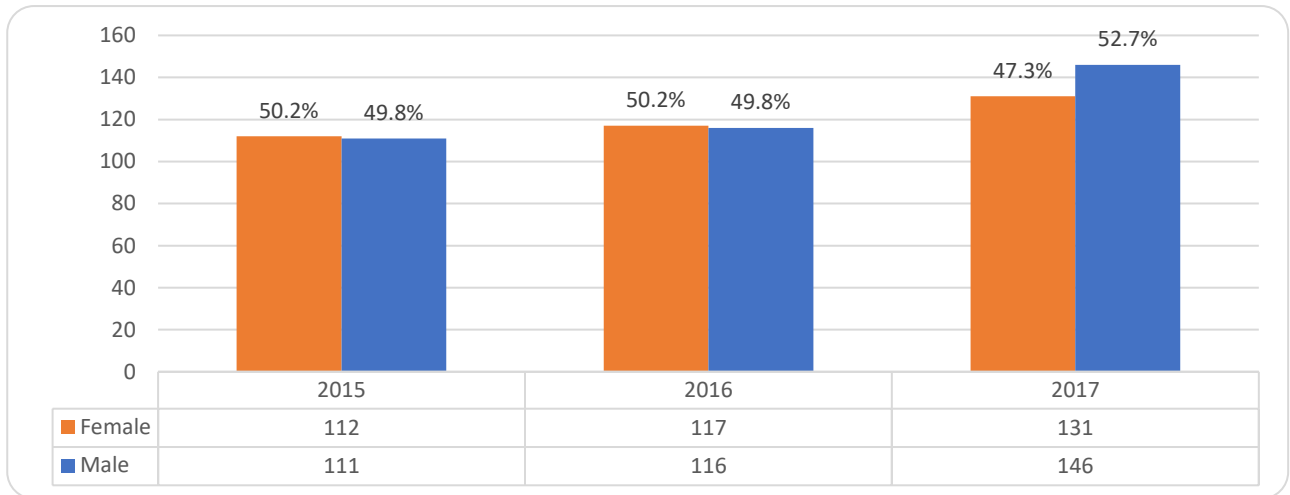
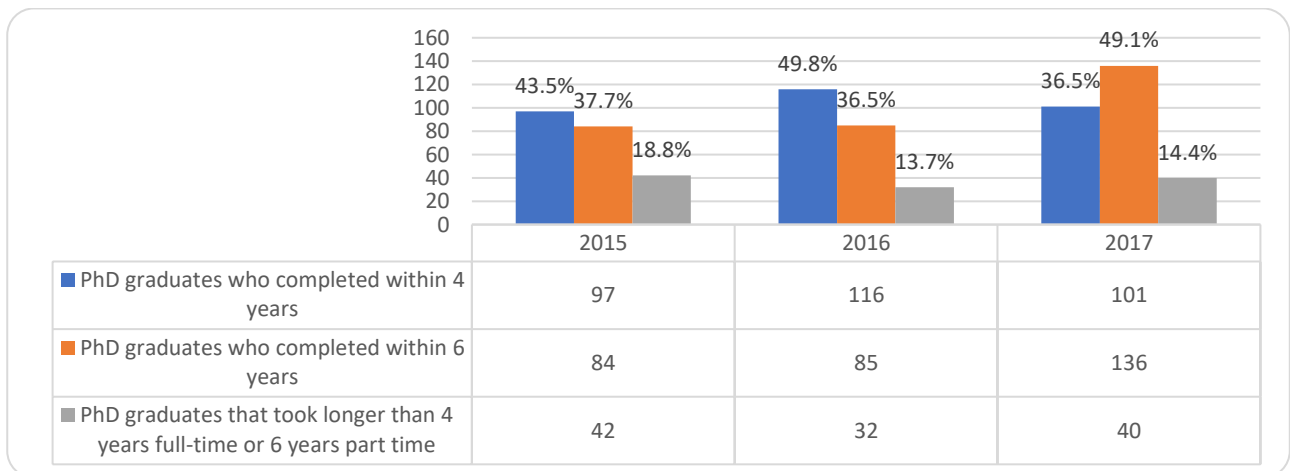


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

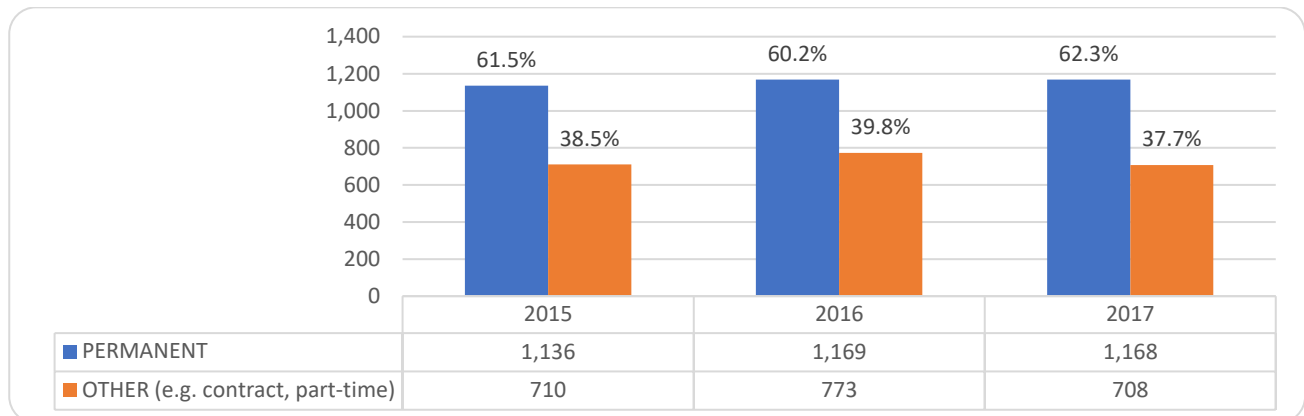


Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 – 2017

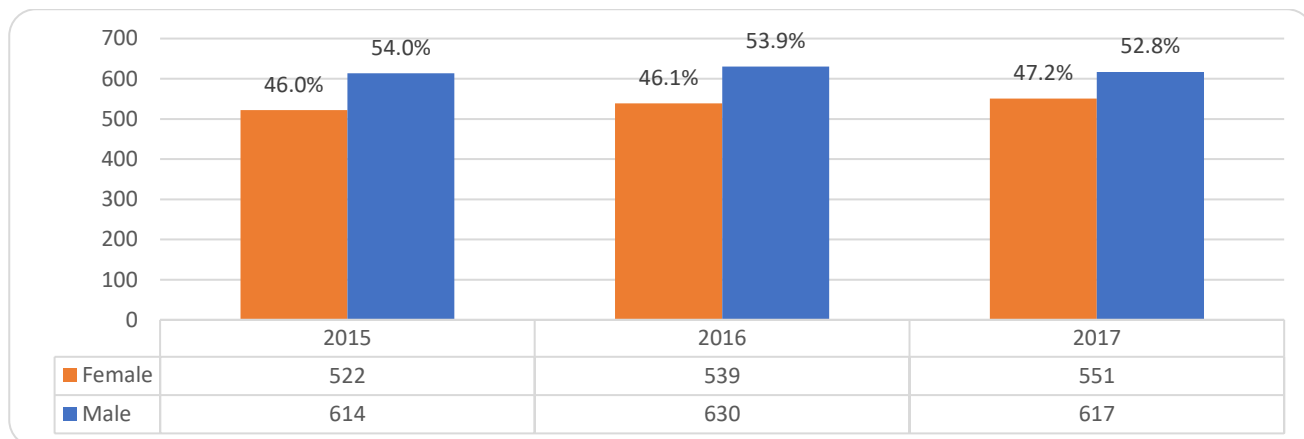


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 – 2017

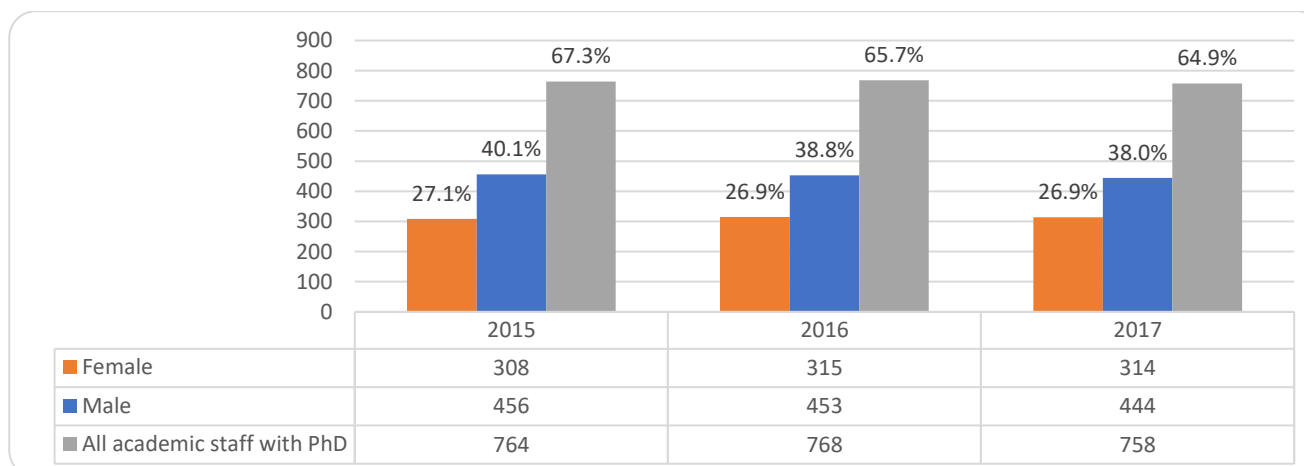


Figure 16: Professors as a % of all academic staff, 2015 – 2017

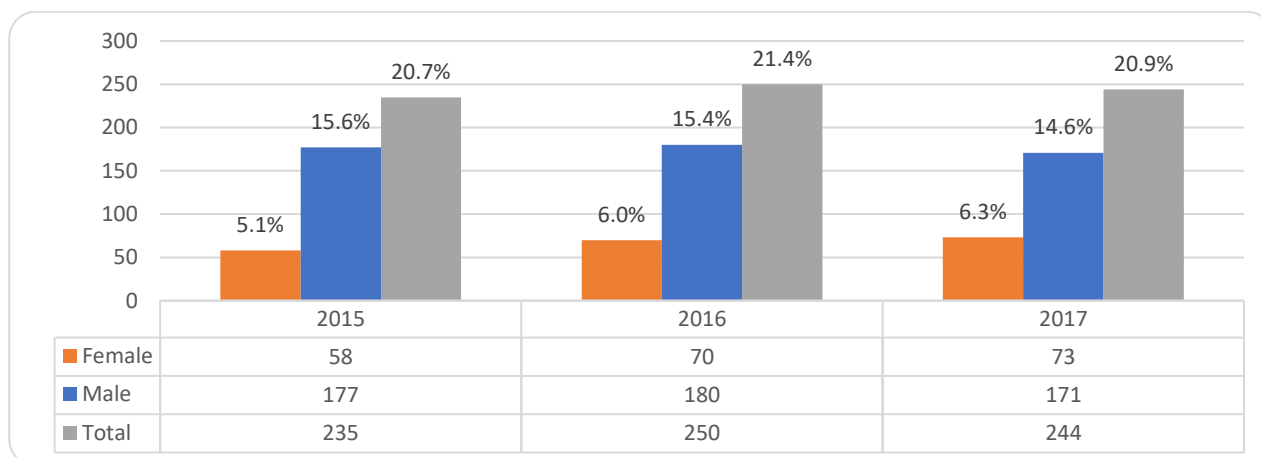


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

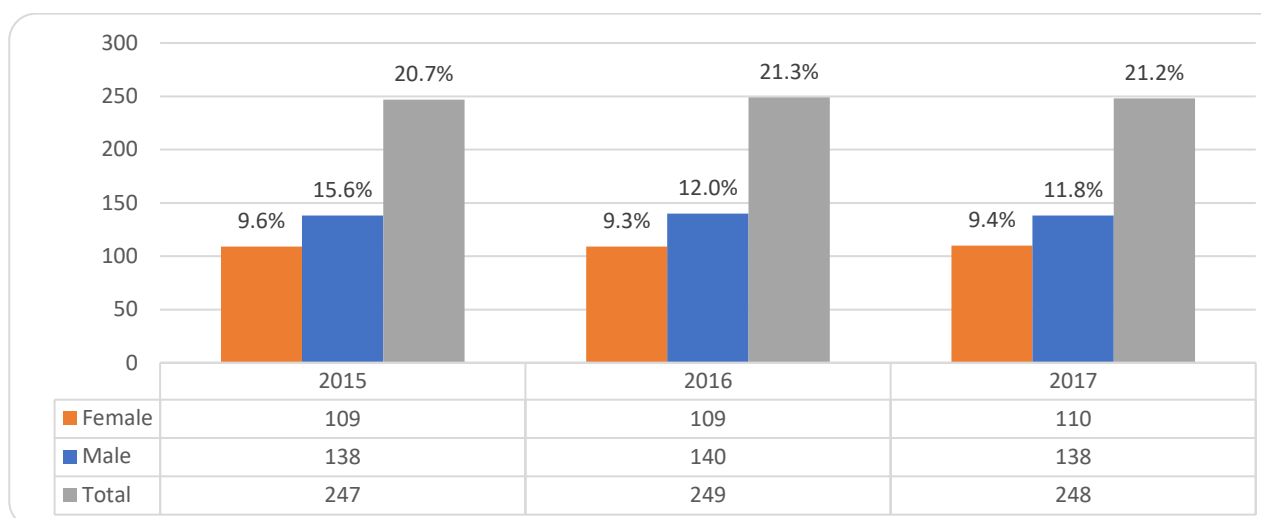


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

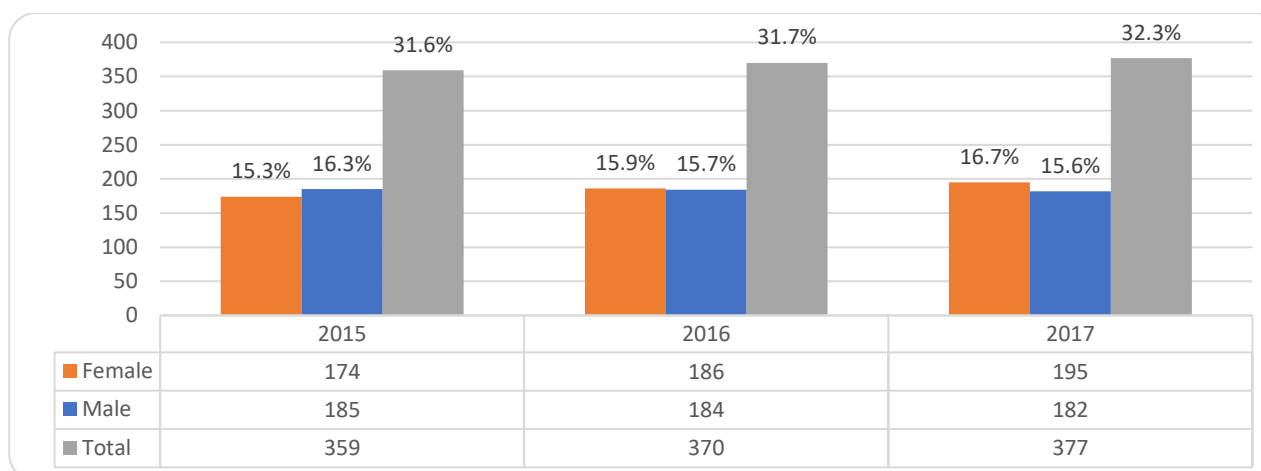


Figure 19: Lecturers and others as a % of all permanent academic staff, 2015 – 2017

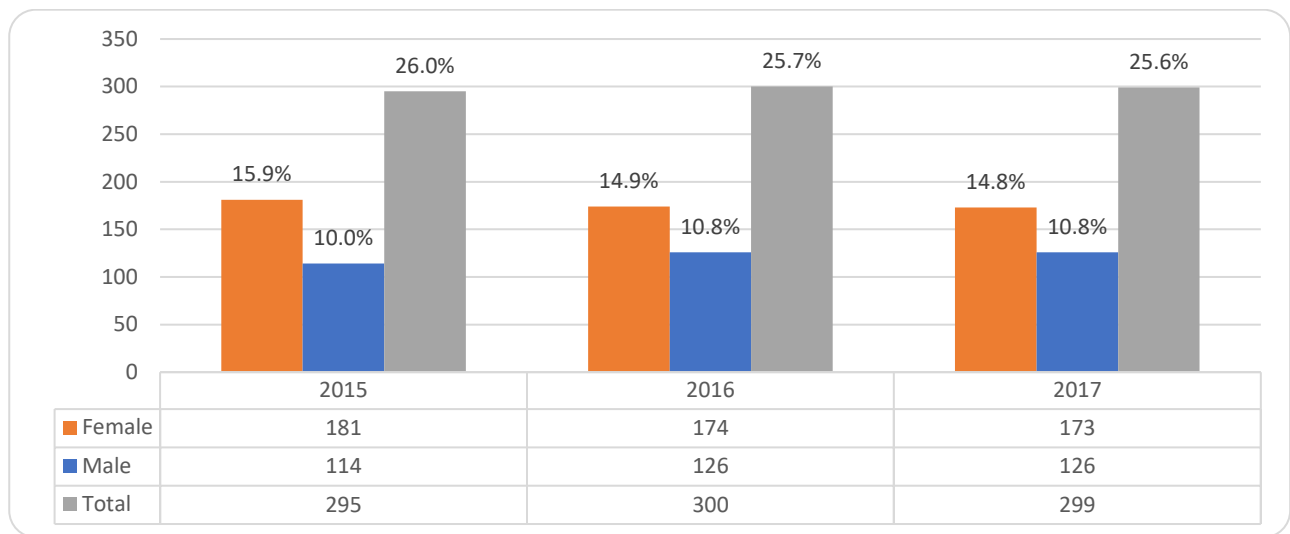


Figure 20: Professors by gender, 2015 – 2017

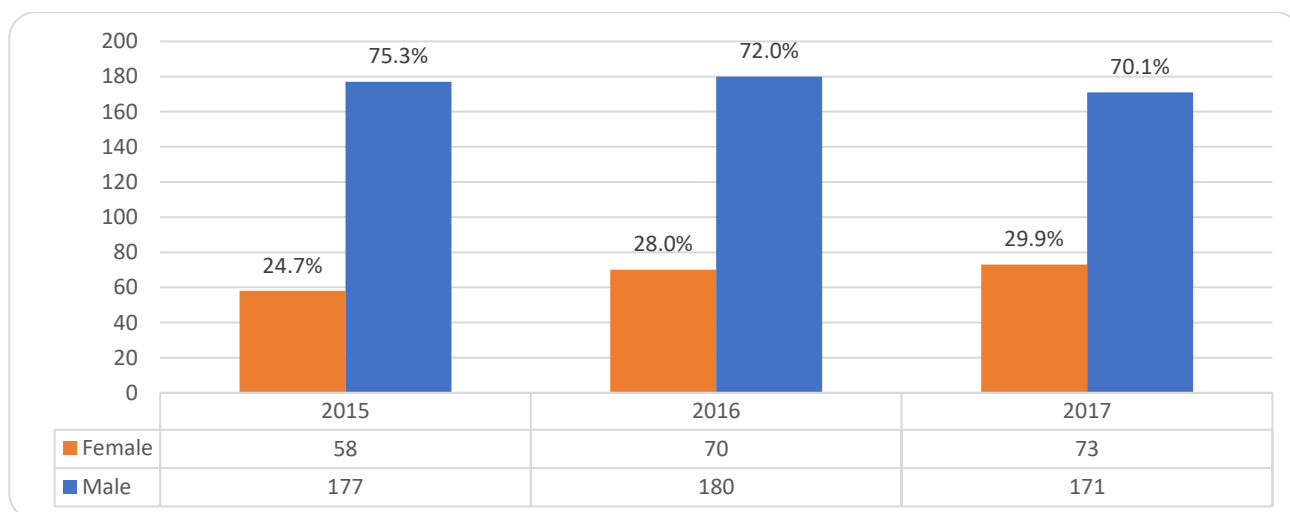


Figure 21: Associate professor by gender, 2015 – 2017

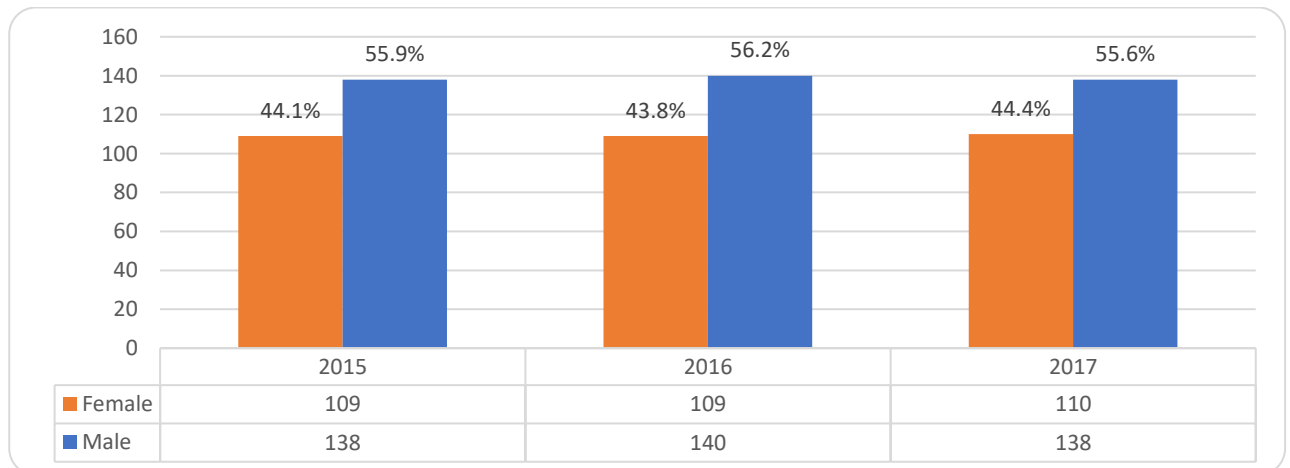


Figure 22: Senior Lecturers by gender, 2015 – 2017

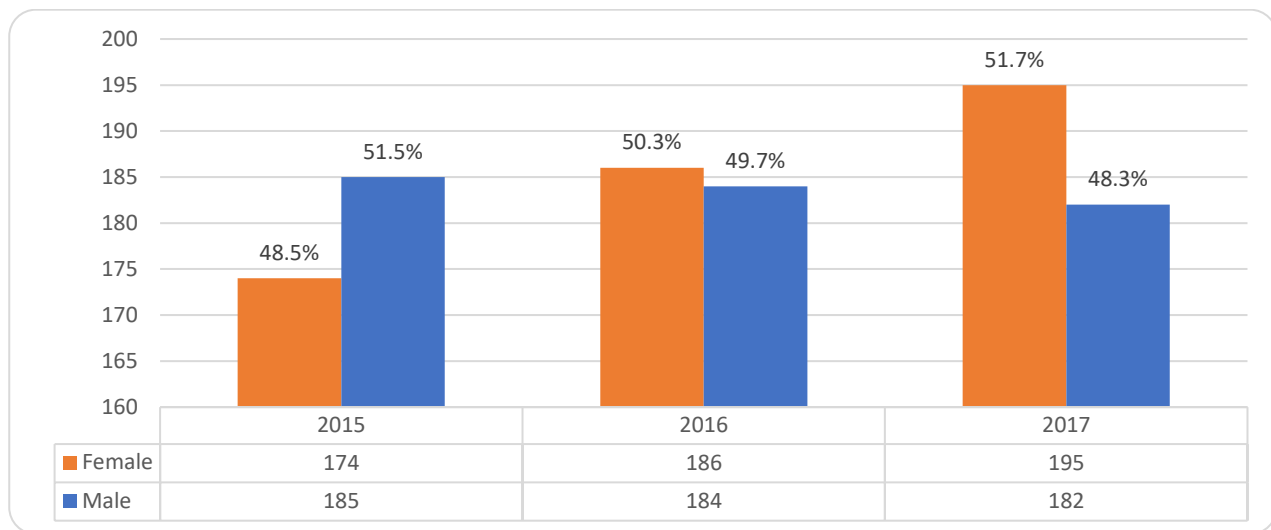


Figure 23: Lecturers & other by gender, 2015 – 2017

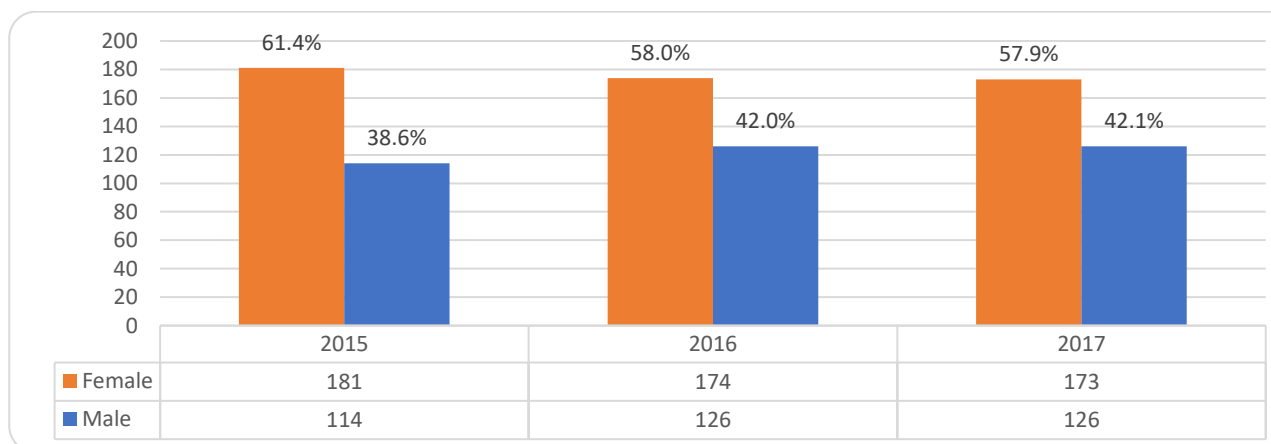


Figure 24: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

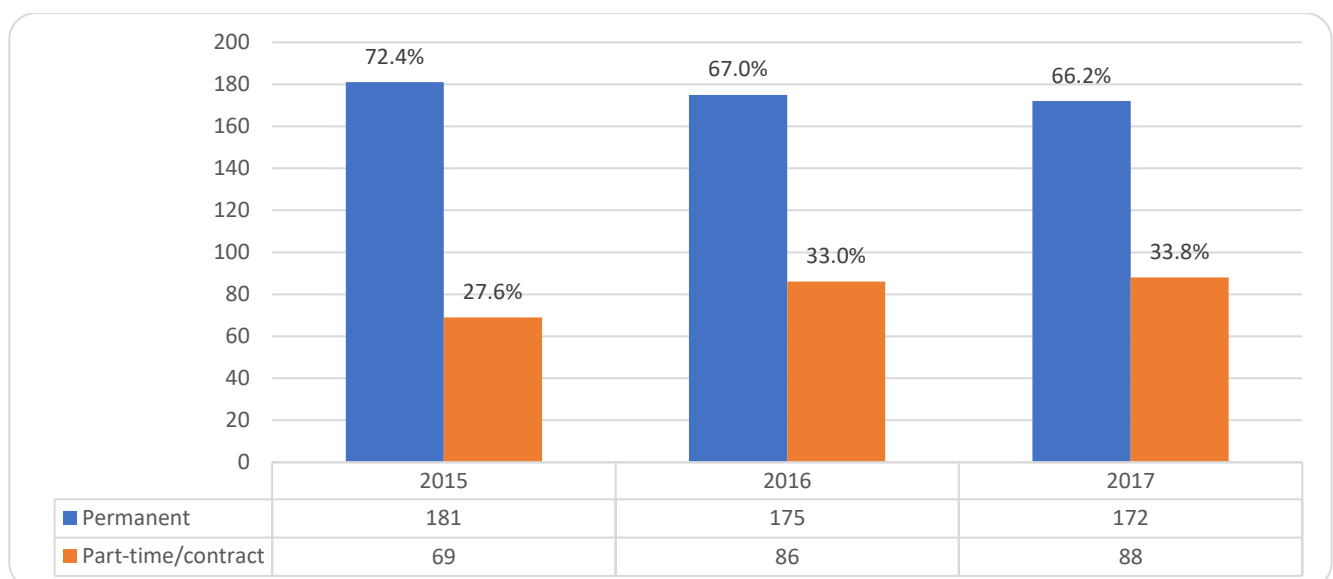


Table 5: Postdoctoral fellows, 2015 - 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 334 | 356 | 368 |

Figure 25: Research income by source, 2015 – 2017 (US \$)

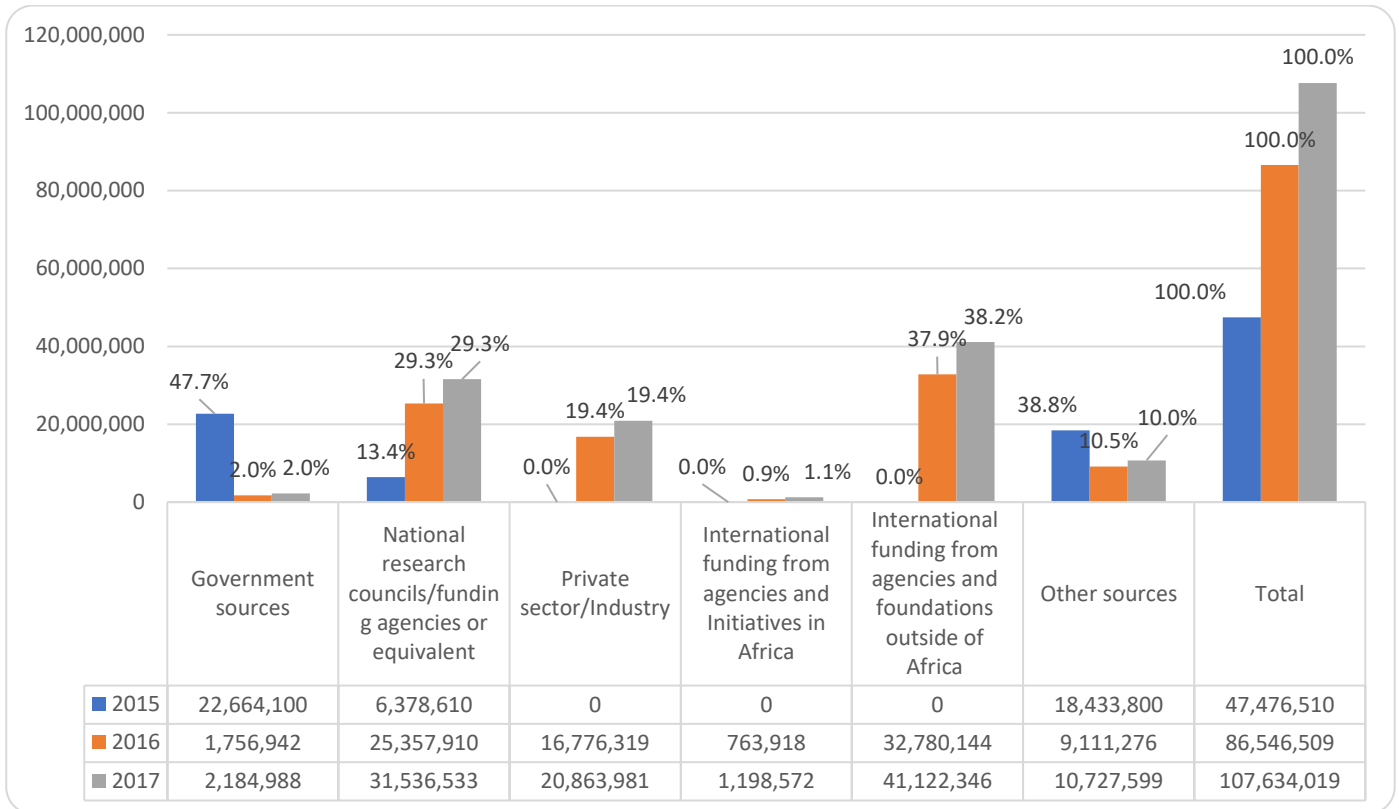


Table 6: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|---------------------------|------|------|------|
| Number patents registered | 11 | 15 | 23 |

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Note: UCAD provided data for 2015 only apart from research income

Student enrolments

Figure 1: UG vs. PG enrolment, 2015

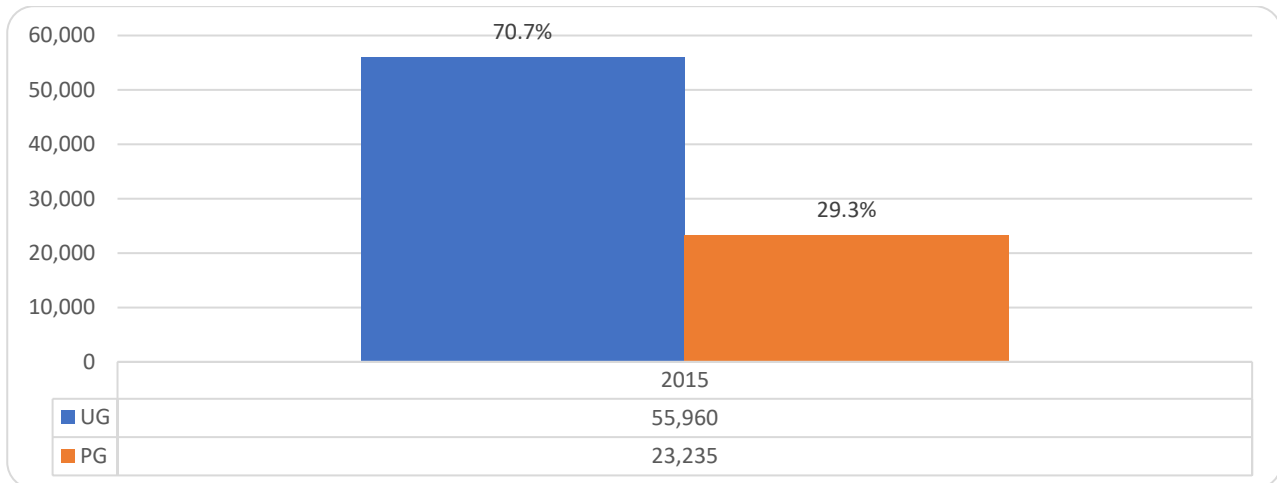
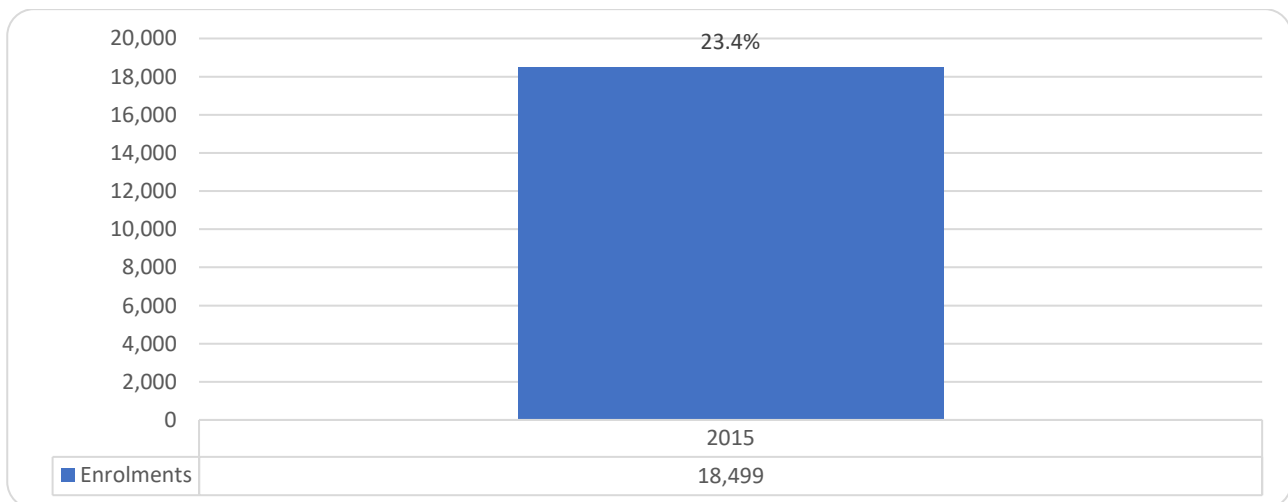


Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015



Note: UCAD did not provide student enrolment data by study fields

Figure 3: Postgraduate enrolments by gender, 2015

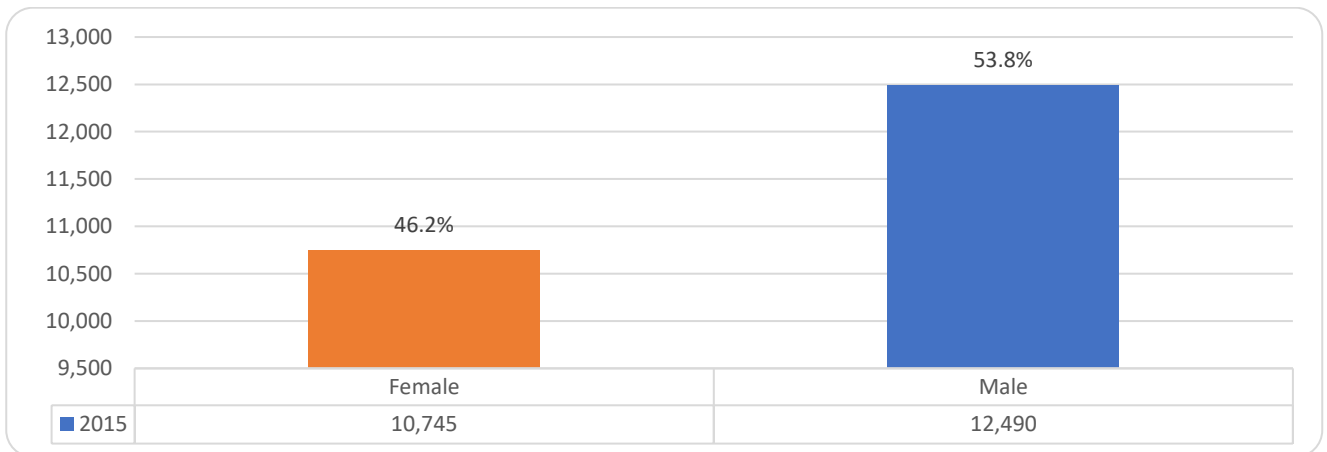


Figure 4: Master's enrolments by gender, 2015

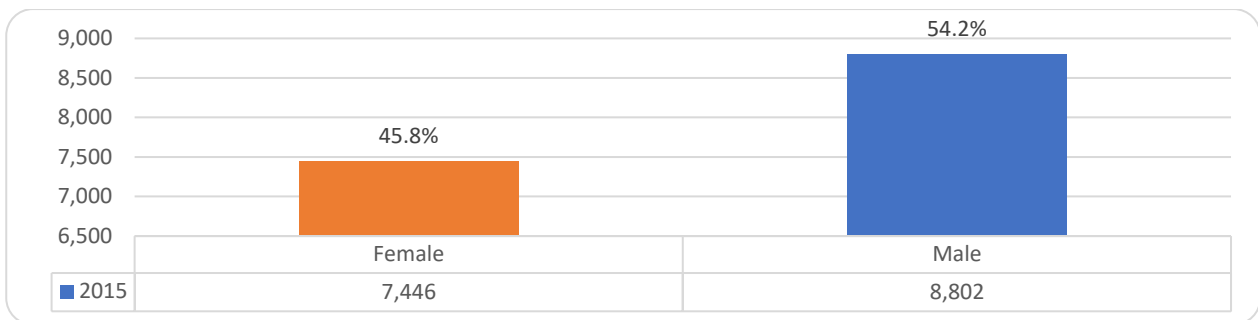
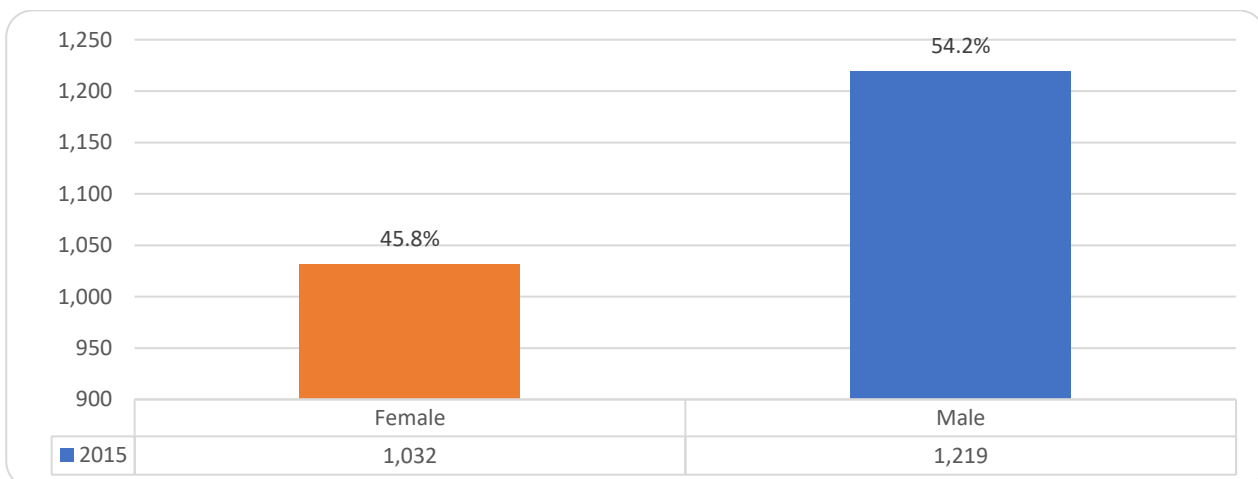


Figure 5: PhD enrolments by gender, 2015



Graduates

Note: UCAD did not provide data on graduates

Staff

Note: UCAD did not provide data on staff by gender and highest qualification.

Figure 6: Professors as a % of all academic staff, 2015

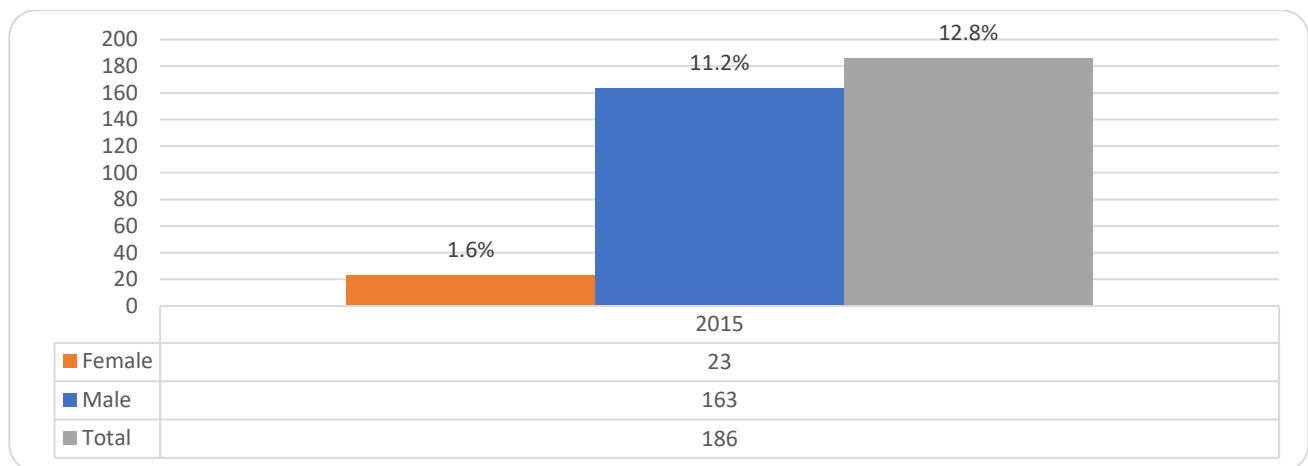


Figure 7: Associate professors as a % of all academic staff, 2015

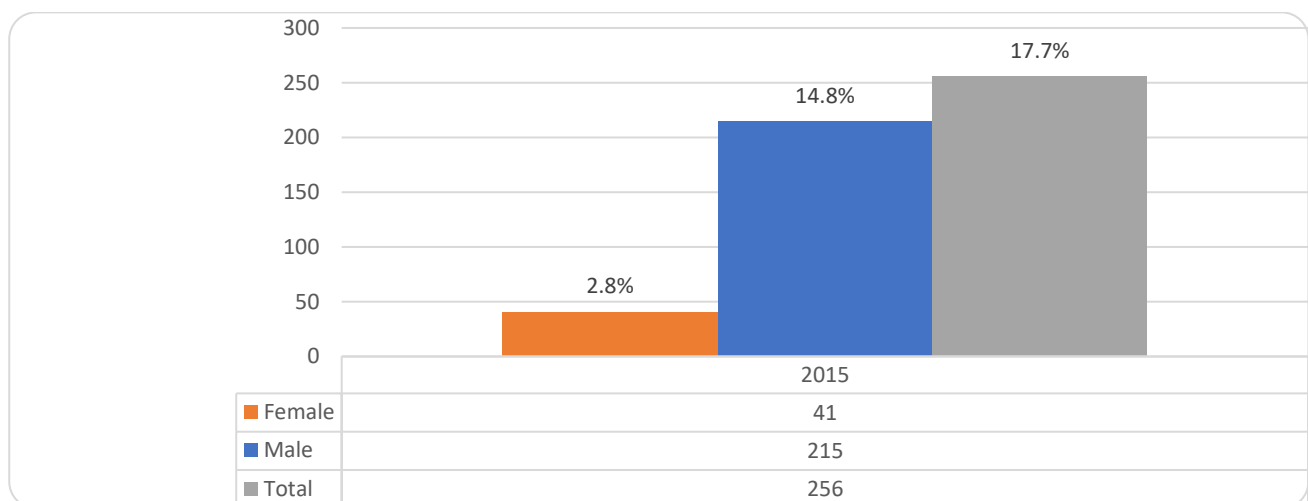


Figure 8: Senior lecturers as a % of all academic staff, 2015

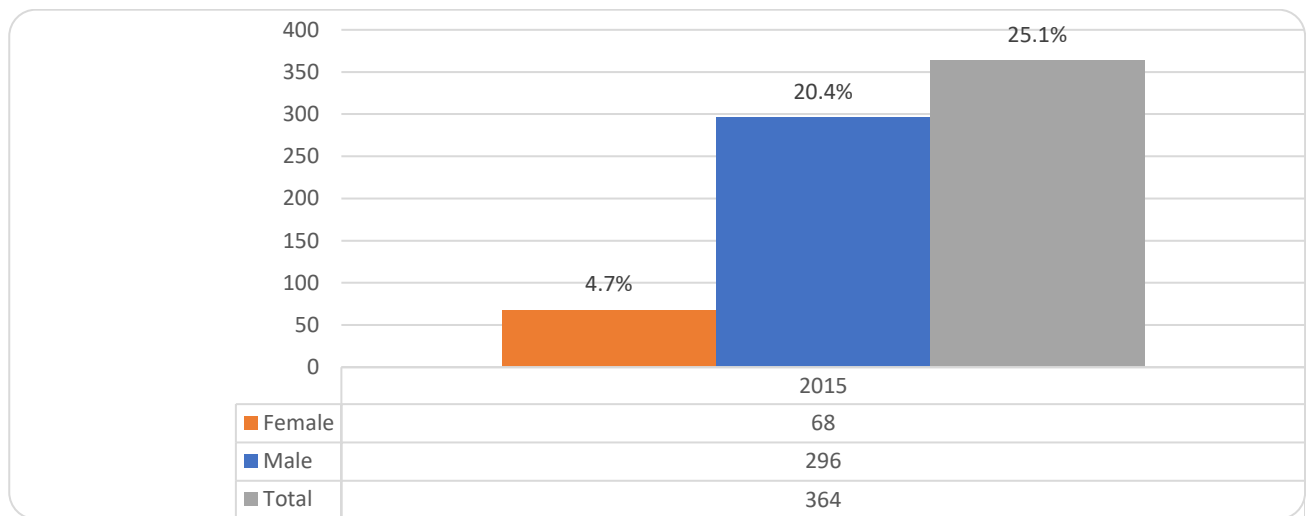


Figure 9: Lecturers and others as a % of all permanent academic staff, 2015

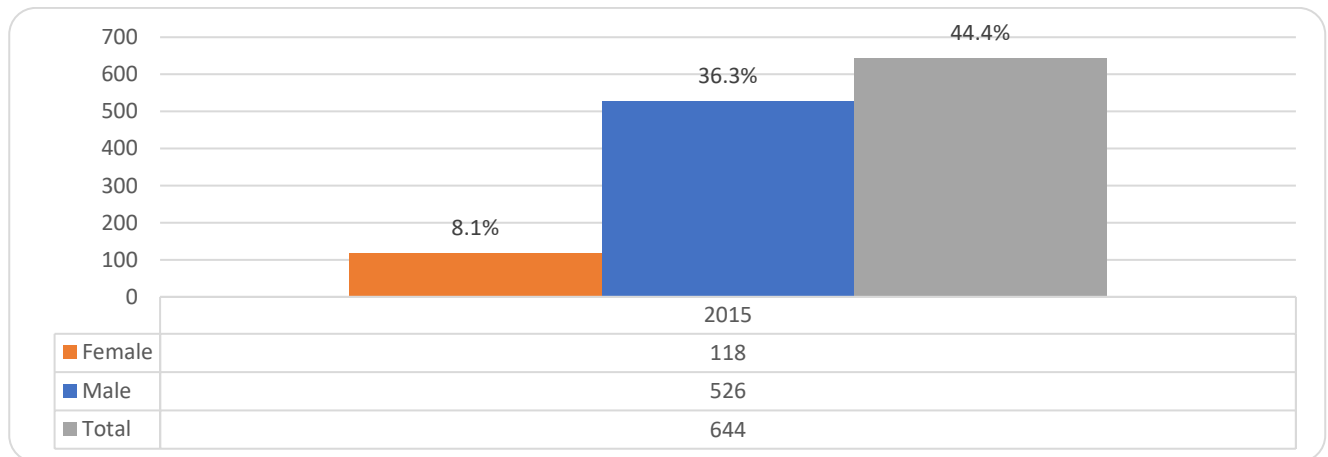


Figure 10: Professors by gender, 2015

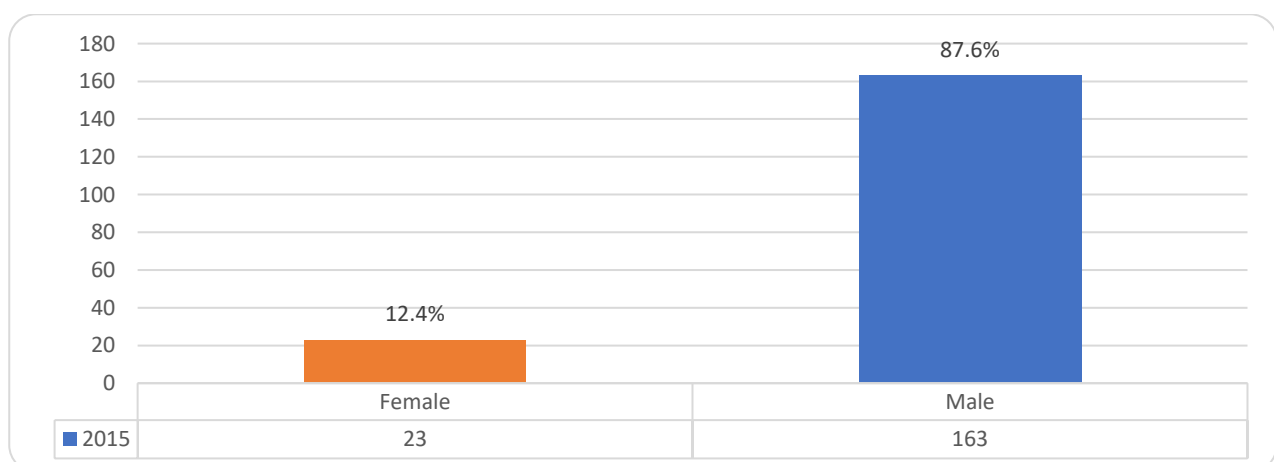


Figure 11: Associate professors by gender, 2015

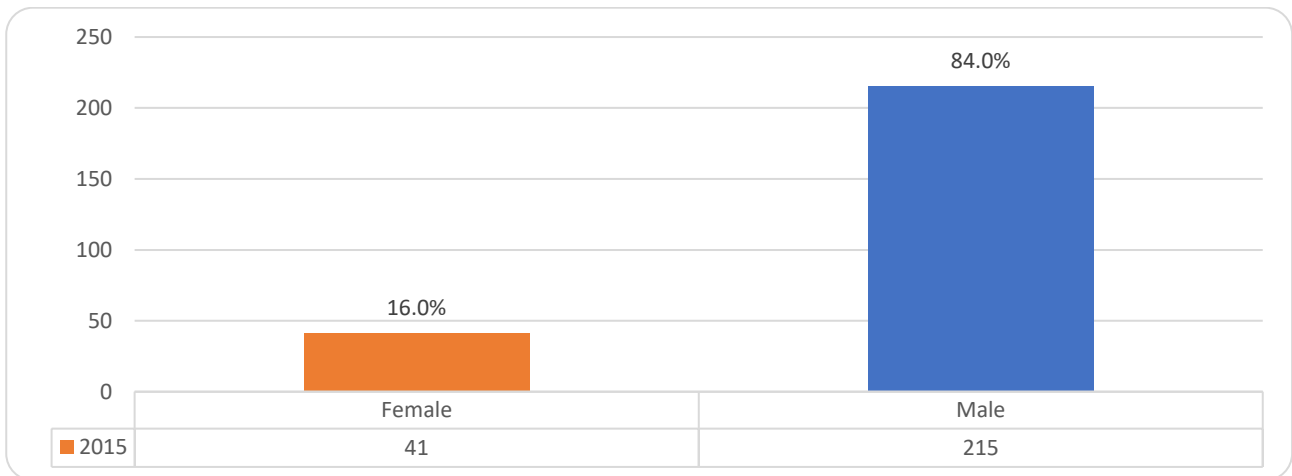


Figure 12: Senior lecturers by gender, 2015

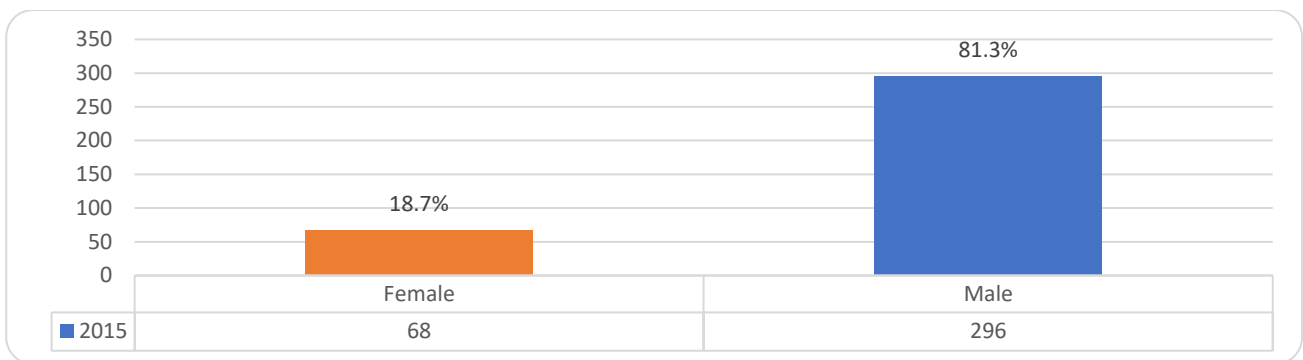


Figure 13: Lecturers or other by gender, 2015

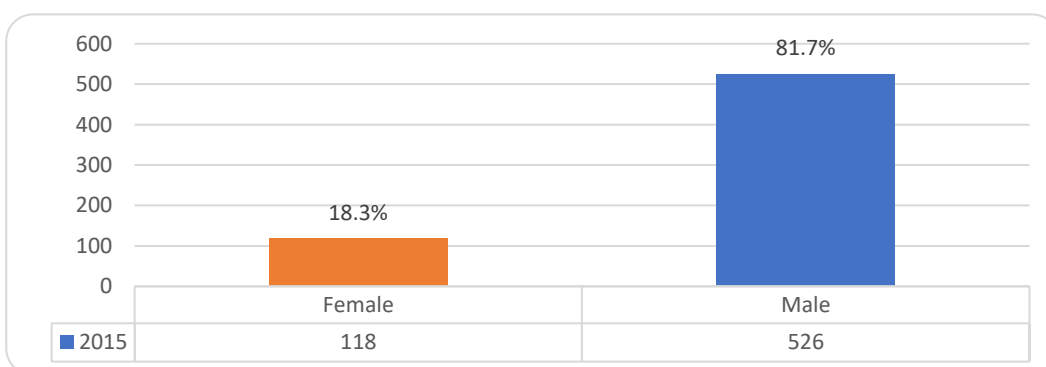
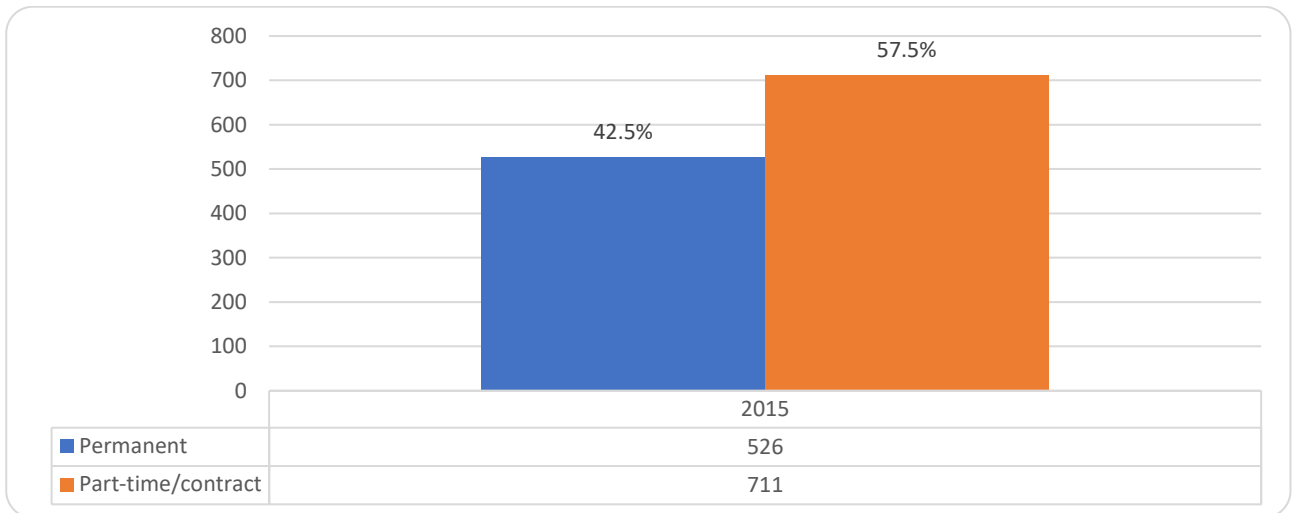


Figure 14: Permanent & part-time/contract support staff as a % of all technical staff, 2015



Note: UCAD did not provide data on postdoctoral fellows and patents.

Student Enrolments

Figure 1: UG vs. PG enrolment, 2015 – 2017

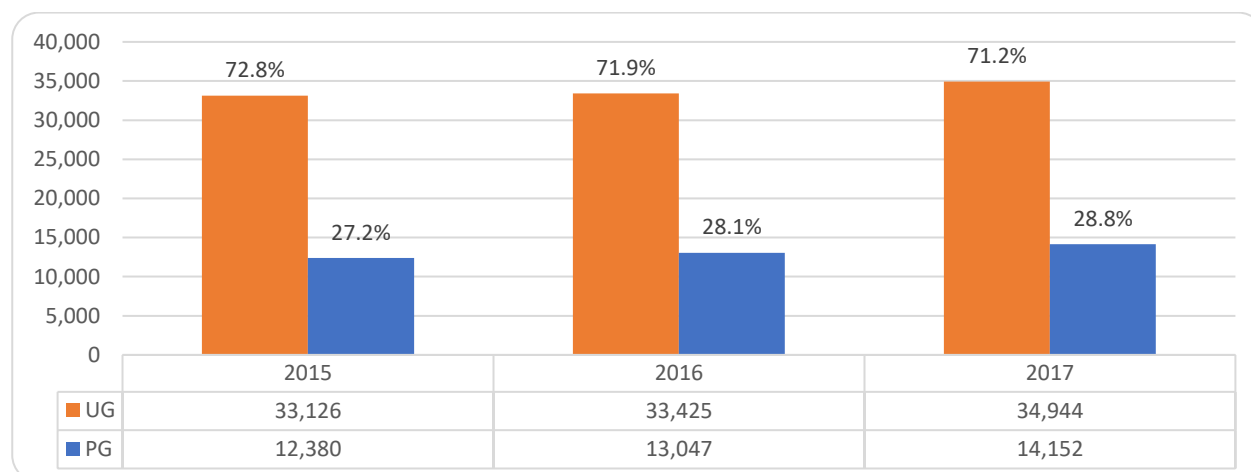


Table 1: Percentage of UG and PG graduates by field of study, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 12.0% | 5.0% | 17.0% | 12.3% | 5.2% | 17.5% | 12.9% | 5.2% | 18.1% |
| Engineering and Technology | 5.1% | 0.9% | 6.0% | 5.1% | 1.0% | 6.1% | 5.0% | 1.0% | 6.0% |
| Medical and Health sciences | 9.7% | 5.0% | 14.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Agricultural sciences | 0.0% | 0.0% | 0.0% | 9.5% | 4.9% | 14.4% | 8.6% | 4.7% | 13.3% |
| Social sciences | 29.2% | 8.8% | 38.0% | 28.8% | 9.5% | 38.3% | 28.7% | 10.2% | 38.8% |
| Humanities | 3.8% | 1.3% | 5.1% | 4.1% | 1.3% | 5.4% | 5.2% | 1.3% | 6.5% |
| Business, Economics and Management Studies | 12.9% | 6.2% | 19.1% | 12.1% | 6.2% | 18.3% | 10.8% | 6.5% | 17.3% |
| Total | 72.8% | 27.2% | 100.0% | 71.9% | 28.1% | 100.0% | 71.2% | 28.8% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments, 2015 – 2017

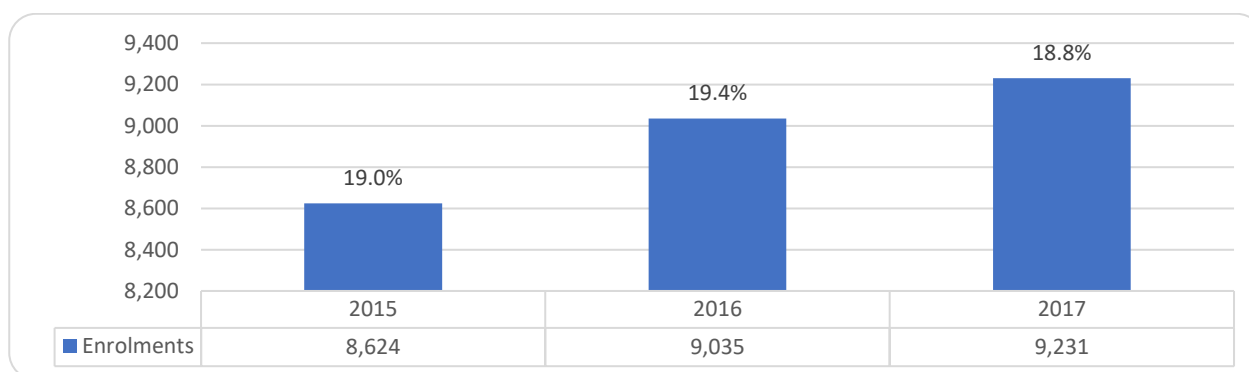


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 3.9% | 4.2% | 4.2% |
| Engineering and Technology | 0.9% | 0.9% | 0.9% |
| Medical and Health sciences | 4.3% | 0.0% | 0.0% |
| Agricultural sciences | 0.0% | 4.4% | 4.1% |
| Social sciences | 5.3% | 5.5% | 5.3% |
| Humanities | 1.0% | 0.9% | 0.9% |
| Business, Economics and Management Studies | 3.5% | 3.5% | 3.4% |
| Total | 19.0% | 19.4% | 18.8% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

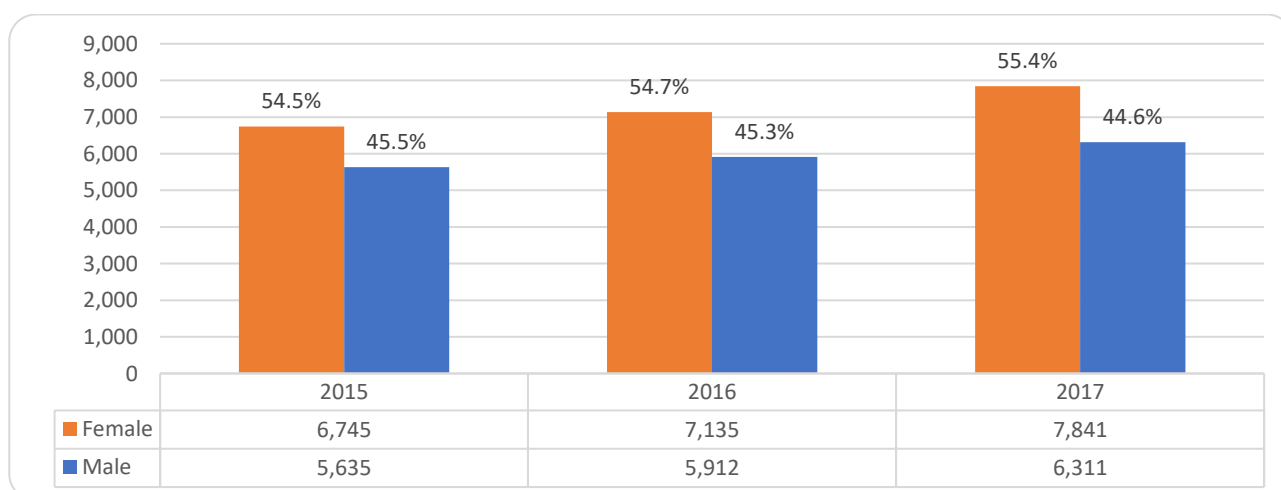


Figure 4: Master's enrolments per gender, 2015 - 2017

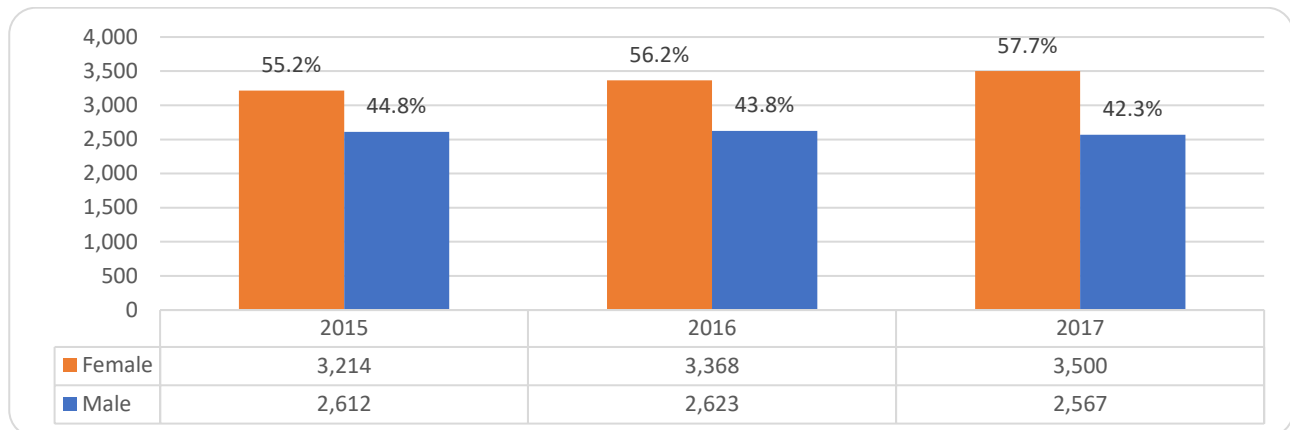
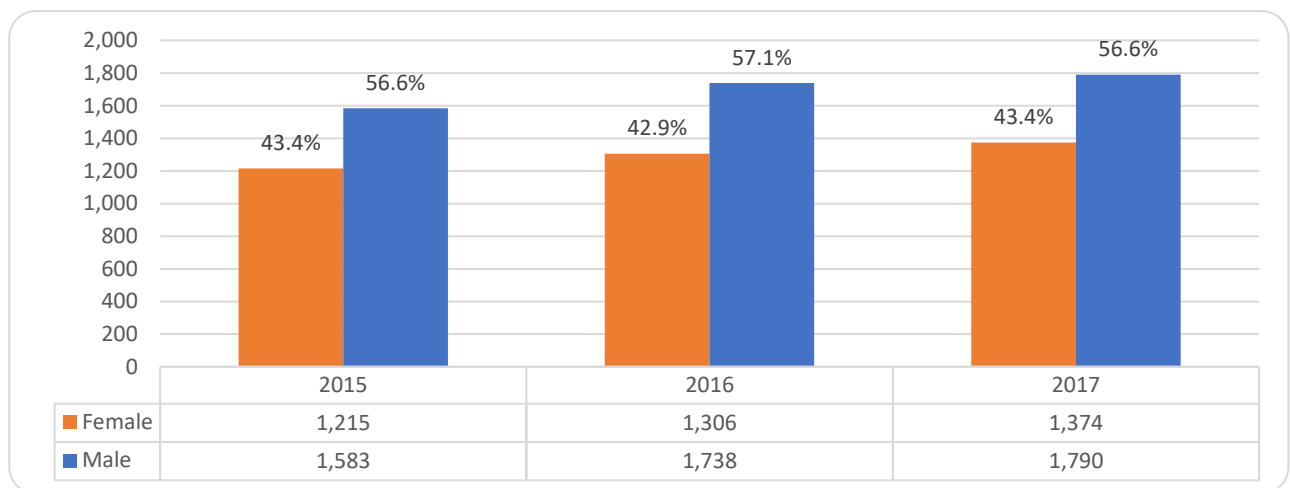


Figure 5: Doctoral enrolments by gender, 2015 - 2017



Graduates

Figure 6: UG vs. PG graduates, 2015 – 2017

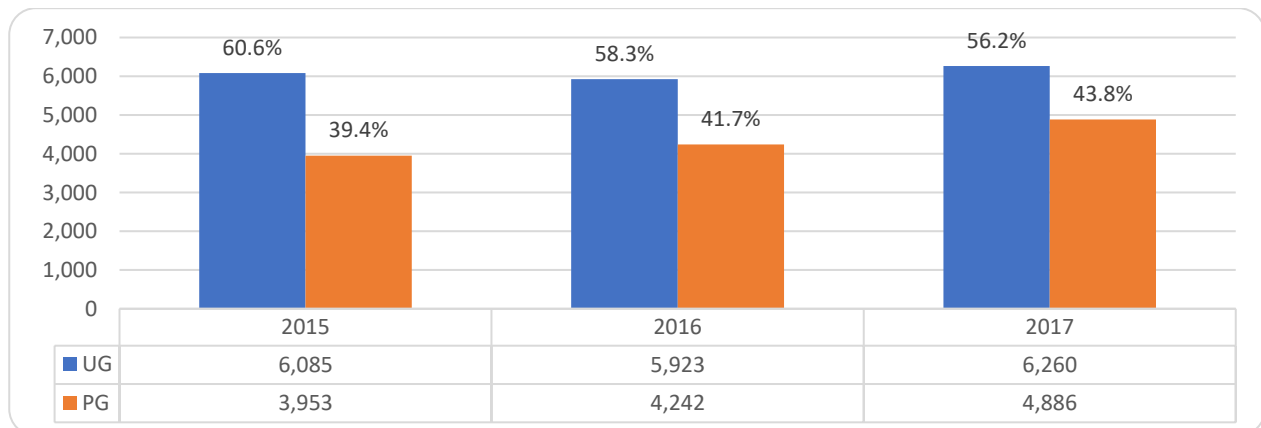


Table 3: UG and PG graduates as a % of total graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 11.5% | 8.1% | 19.7% | 13.3% | 9.1% | 22.4% | 12.6% | 8.1% | 20.7% |
| Engineering and Technology | 0.5% | 1.1% | 1.7% | 0.8% | 1.2% | 2.0% | 0.5% | 1.3% | 1.8% |
| Medical and Health sciences | 22.1% | 10.6% | 32.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Agricultural sciences | 0.0% | 0.0% | 0.0% | 17.7% | 12.1% | 29.7% | 13.1% | 13.4% | 26.5% |
| Social sciences | 13.0% | 7.2% | 20.2% | 14.2% | 7.9% | 22.2% | 15.8% | 8.5% | 24.3% |
| Humanities | 2.7% | 1.9% | 4.6% | 2.1% | 1.7% | 3.8% | 3.2% | 1.7% | 4.9% |
| Business, Economics and Management Studies | 10.7% | 10.4% | 21.1% | 10.2% | 9.8% | 20.0% | 11.0% | 10.7% | 21.8% |
| Total | 60.6% | 39.4% | 100.0% | 58.3% | 41.7% | 100.0% | 56.2% | 43.8% | 100.0% |

Figure 7: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

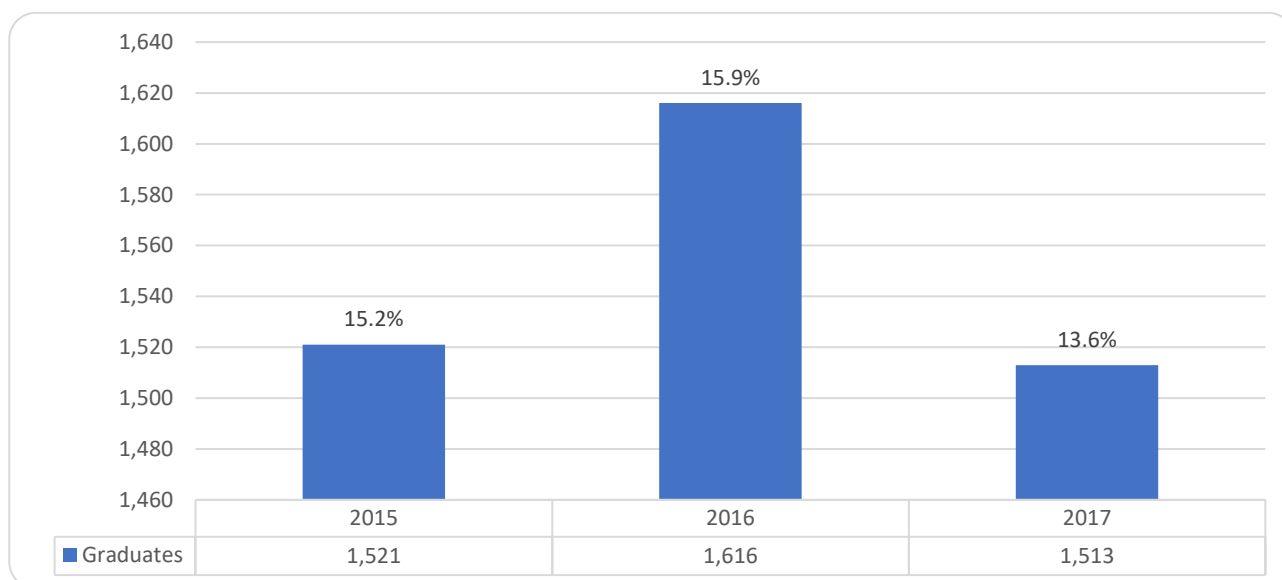


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 – 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 4.4% | 5.3% | 4.2% |
| Engineering and Technology | 0.7% | 0.7% | 0.6% |
| Medical and Health sciences | 3.7% | 0.0% | 0.0% |
| Agricultural sciences | 0.0% | 4.2% | 3.7% |
| Social sciences | 2.6% | 2.4% | 2.1% |
| Humanities | 0.9% | 0.6% | 0.6% |
| Business, Economics and Management Studies | 2.8% | 2.7% | 2.3% |
| Total | 15.2% | 15.9% | 13.6% |

Figure 8: PhD graduates as a % of total graduates (UG and PG), 2015 – 2017

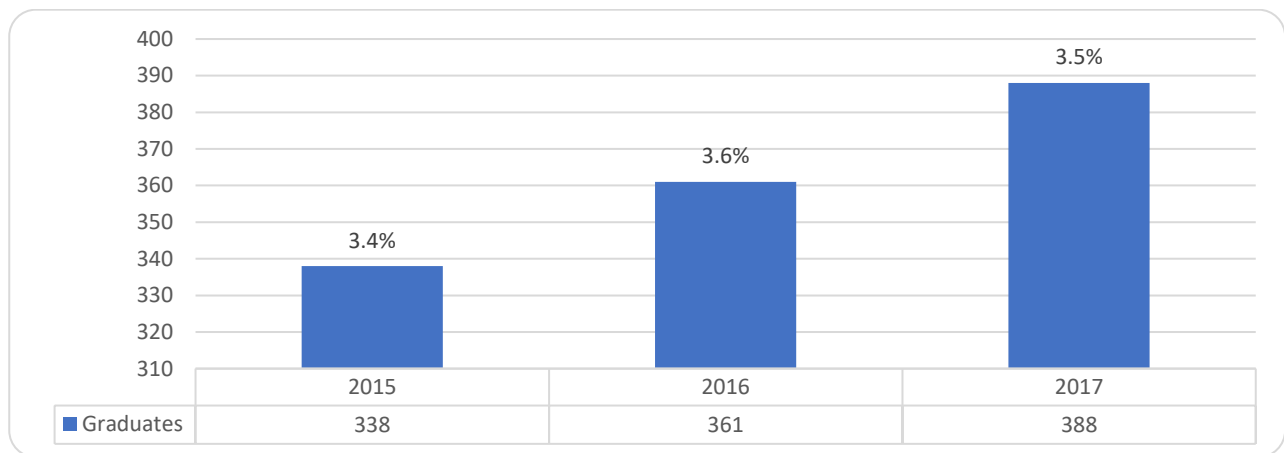


Figure 9: Postgraduate graduates by gender, 2015 – 2017

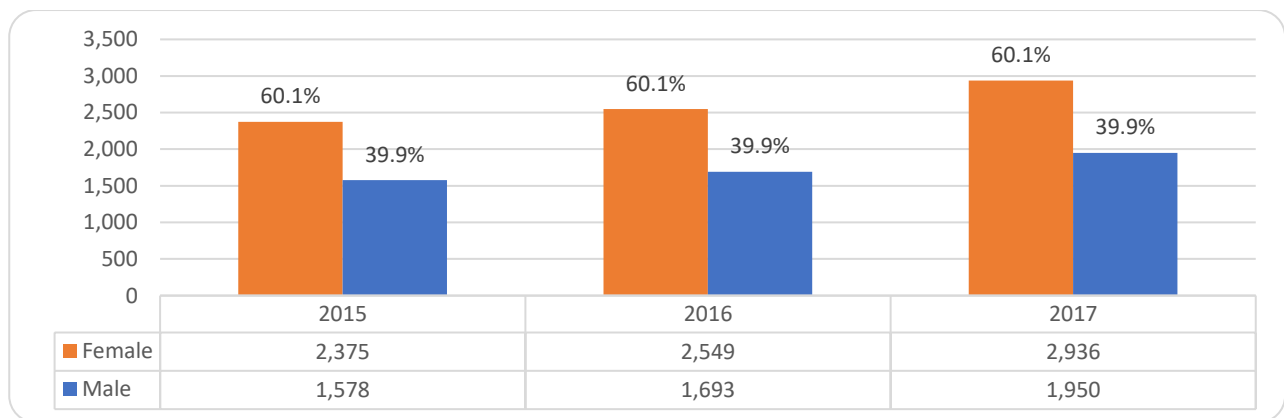


Figure 10: Master's graduates by gender, 2015 – 2017

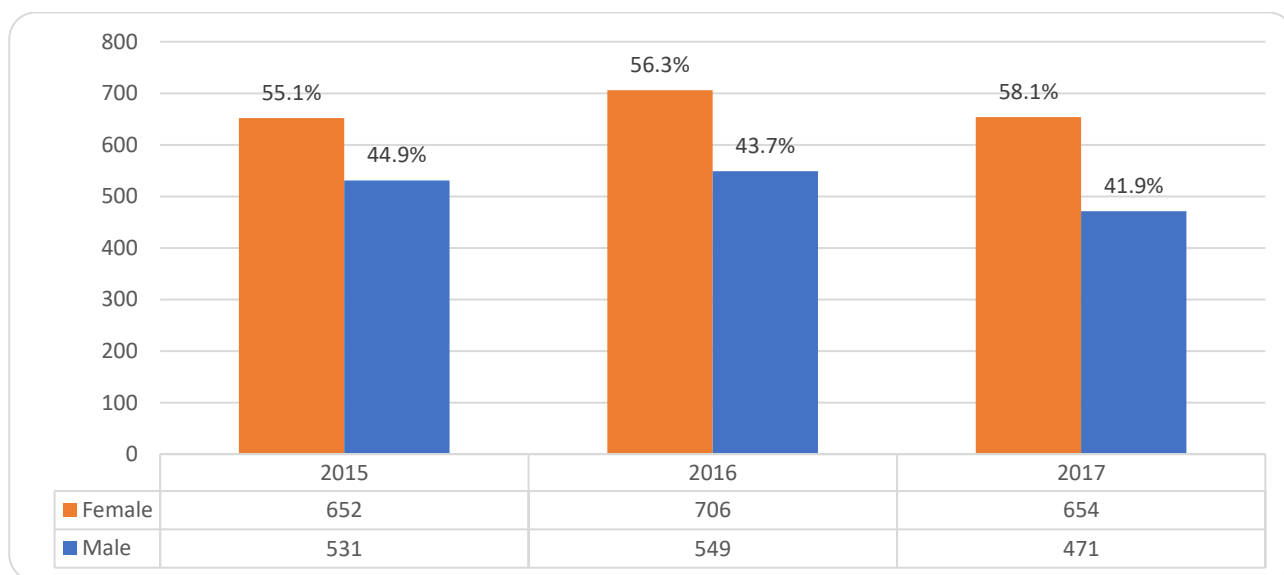


Figure 11: Doctoral graduates by gender, 2015 - 2017

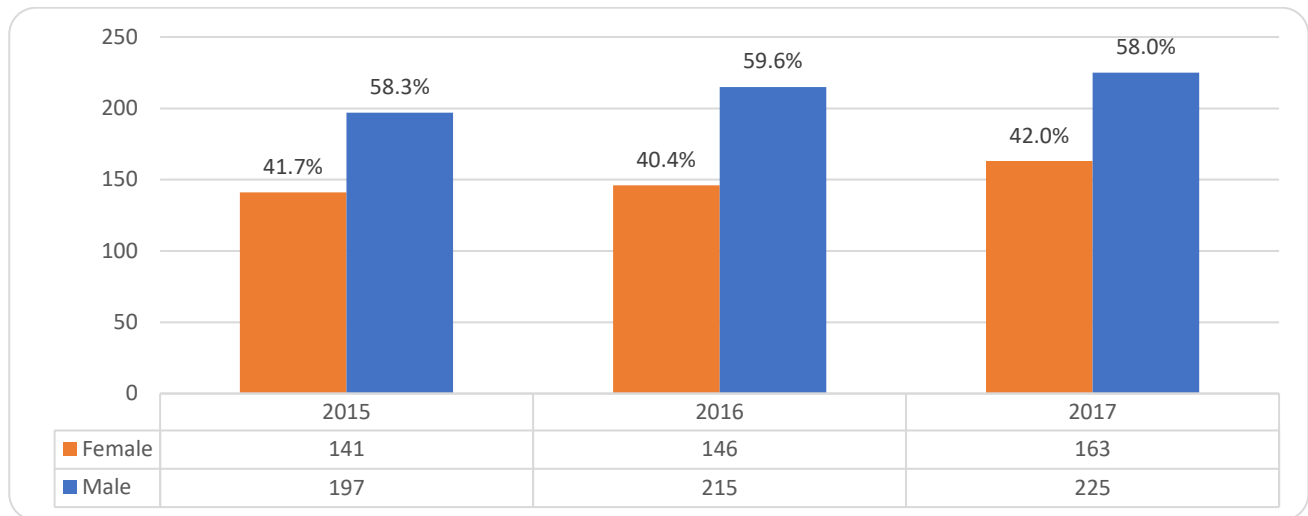
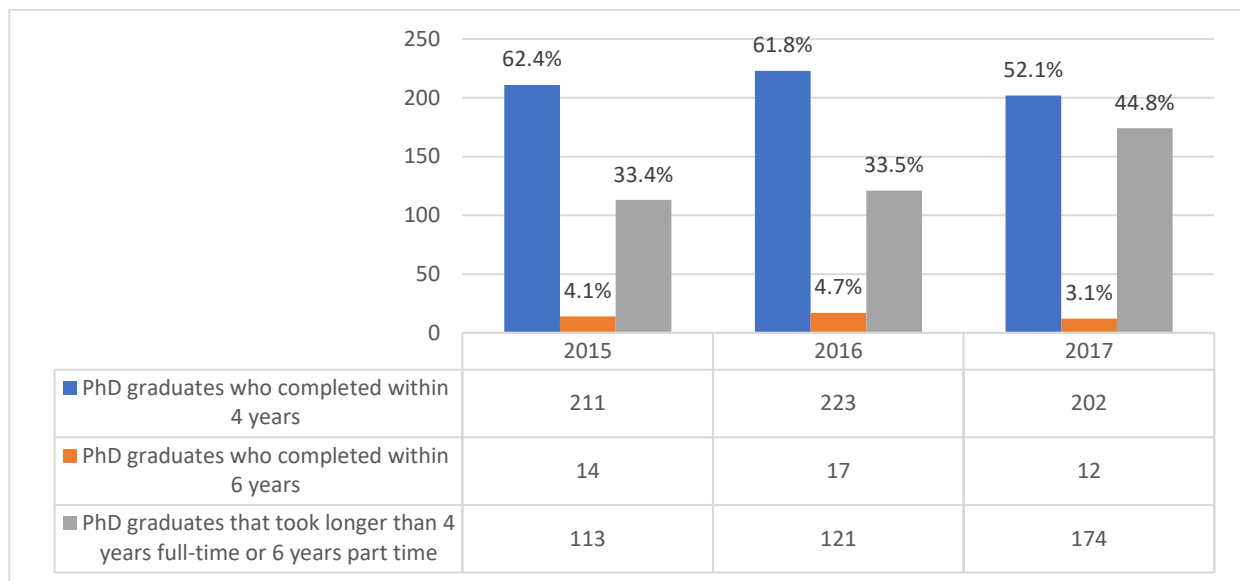


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017



Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 – 2017

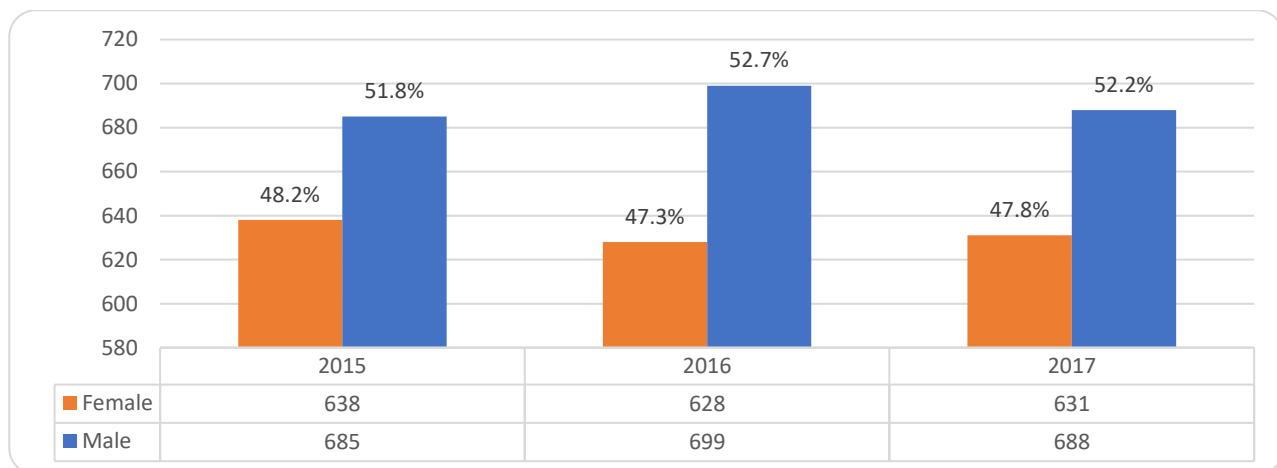


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 - 2017

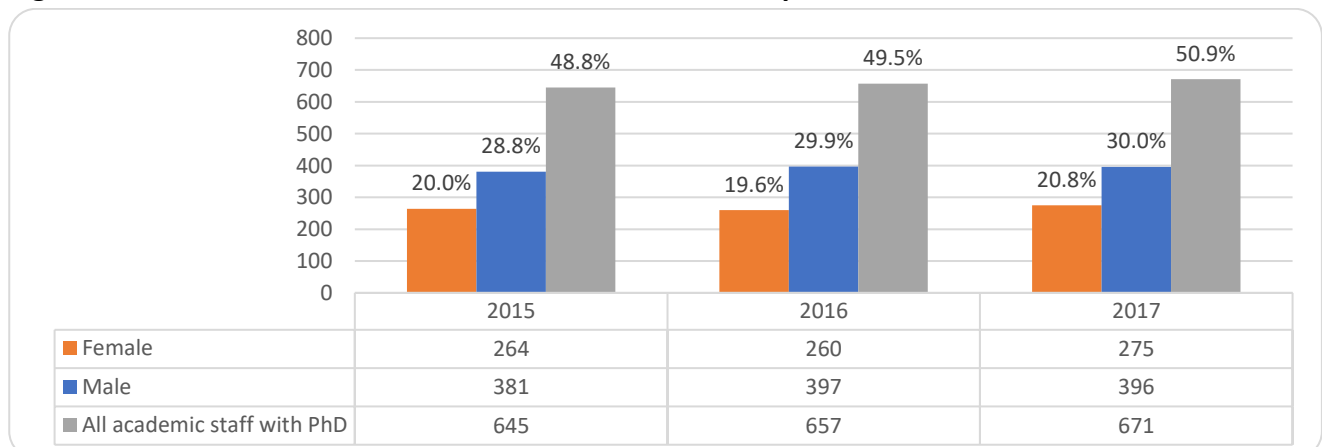


Figure 16: Professors as a % of all academic staff, 2015 – 2017

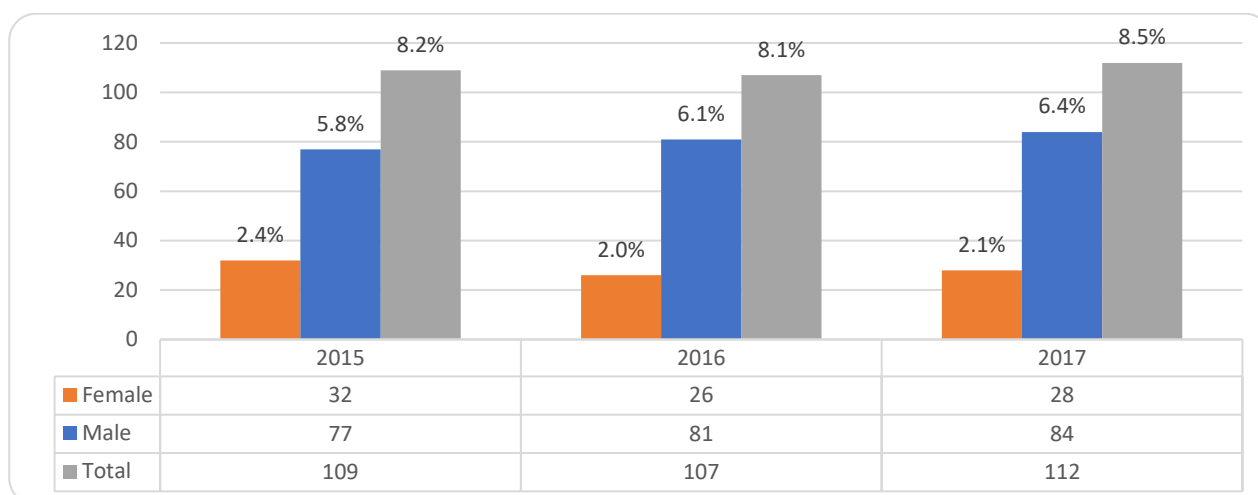


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

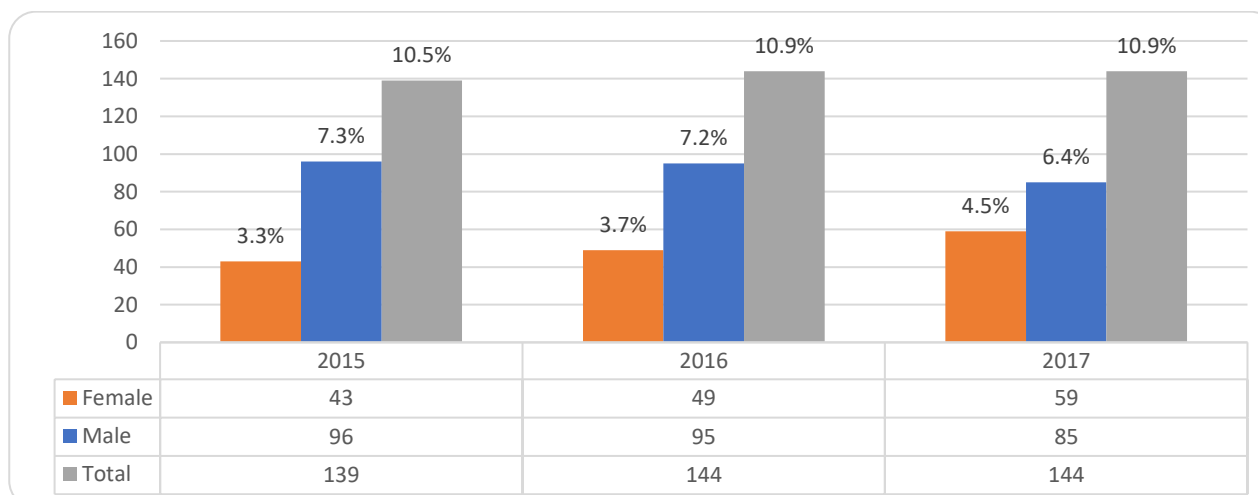


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

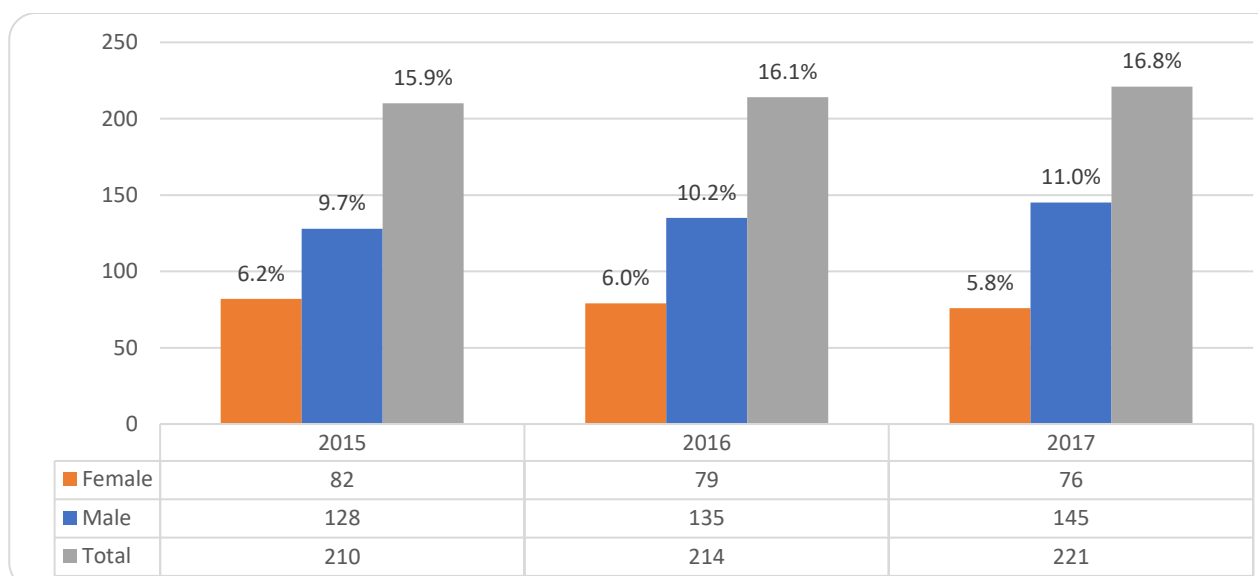


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

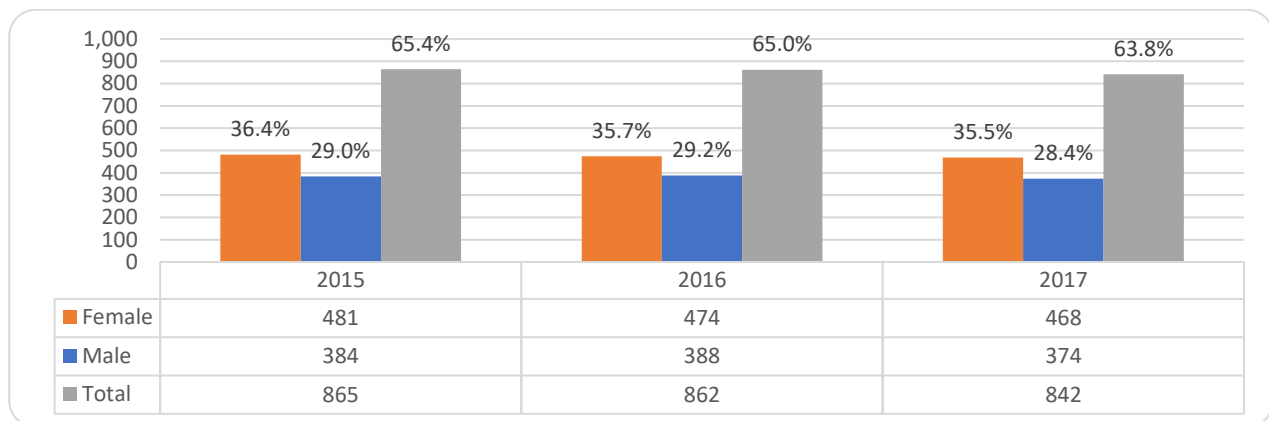


Figure 20: Professors by gender, 2015 - 2017

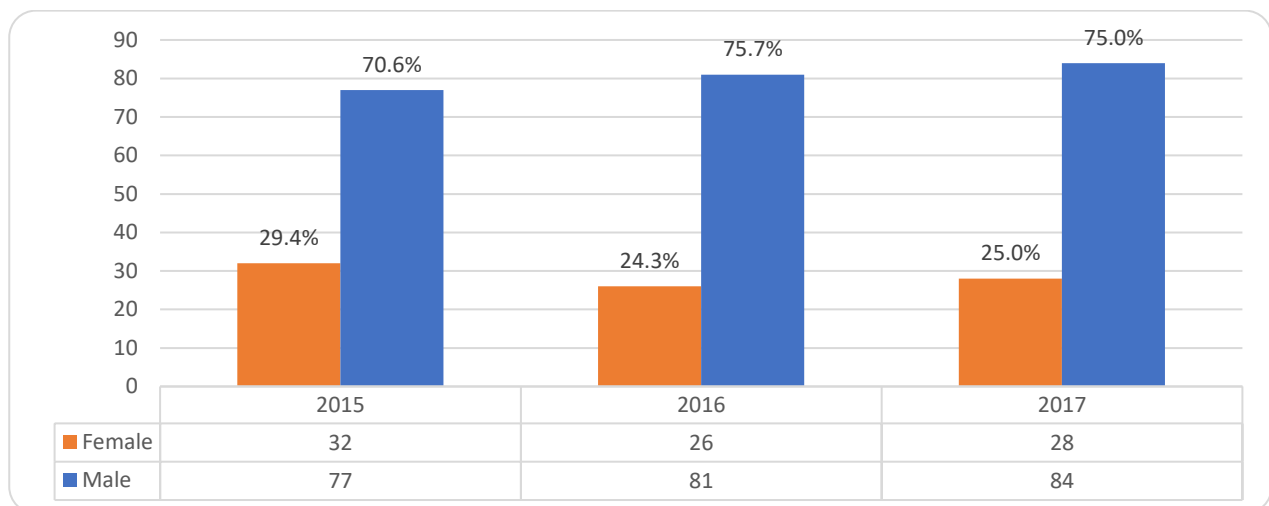


Figure 21: Associate professors, 2015 – 2017

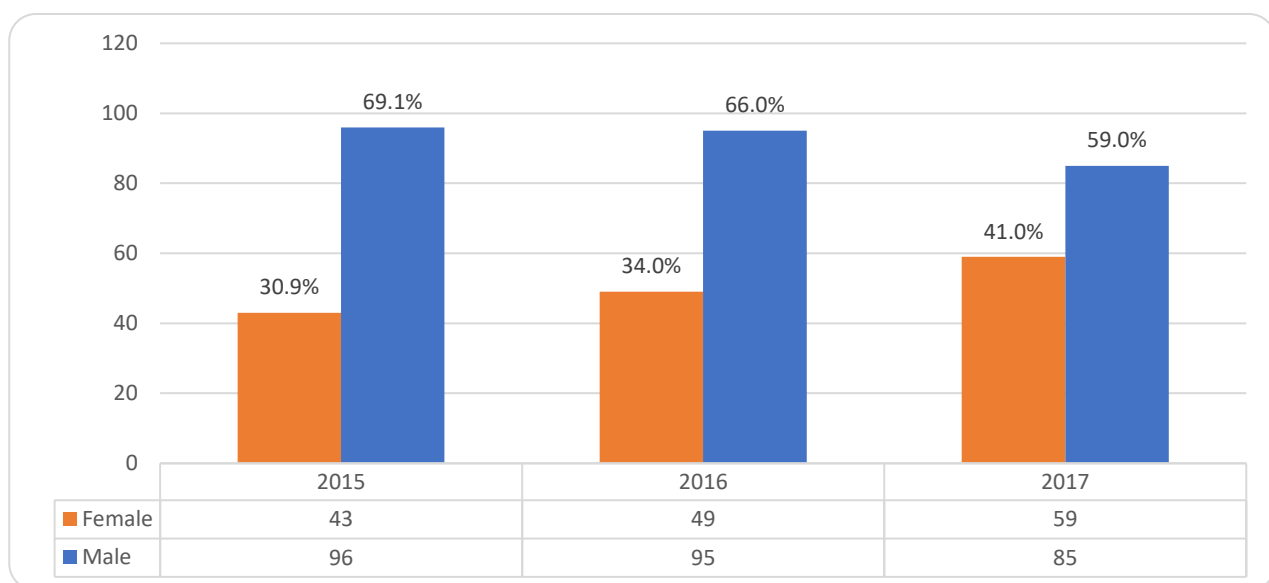


Figure 22: Senior Lecturers by gender, 2015 – 2017

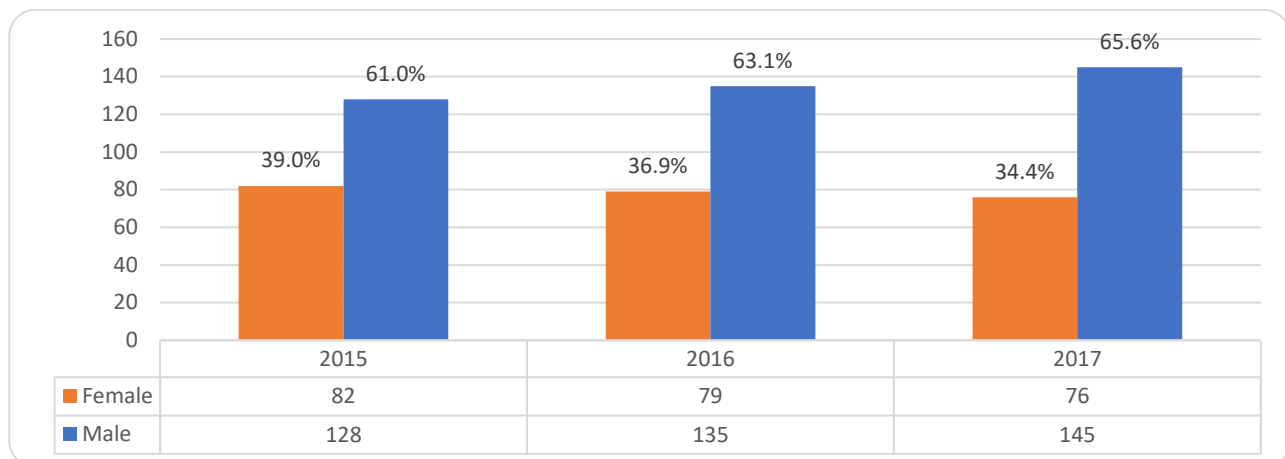


Figure 23: Lecturers or other by gender, 2015 – 2017

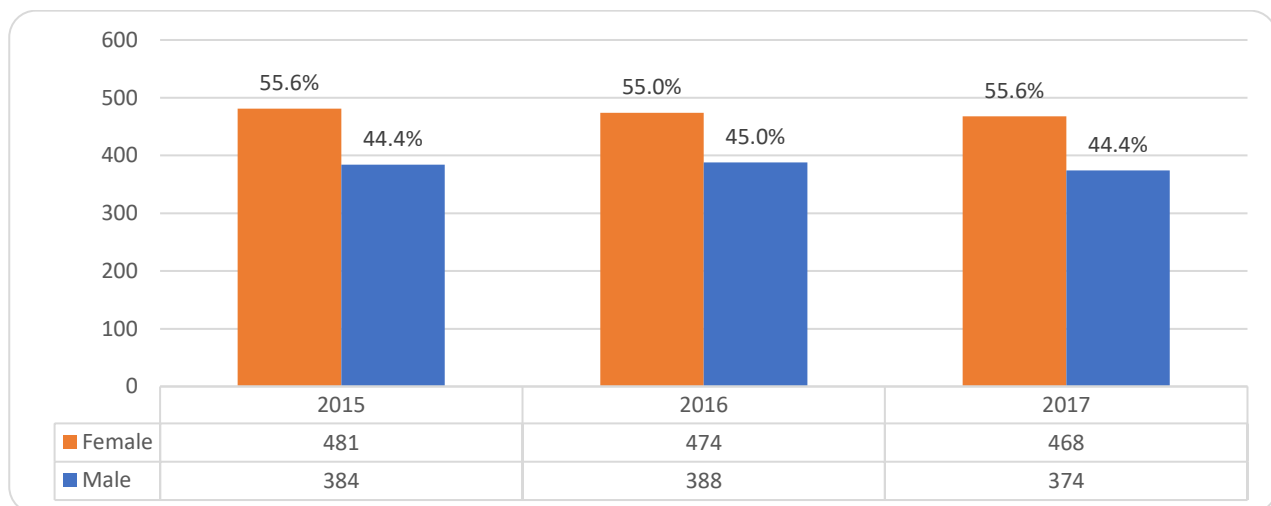


Figure 24: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

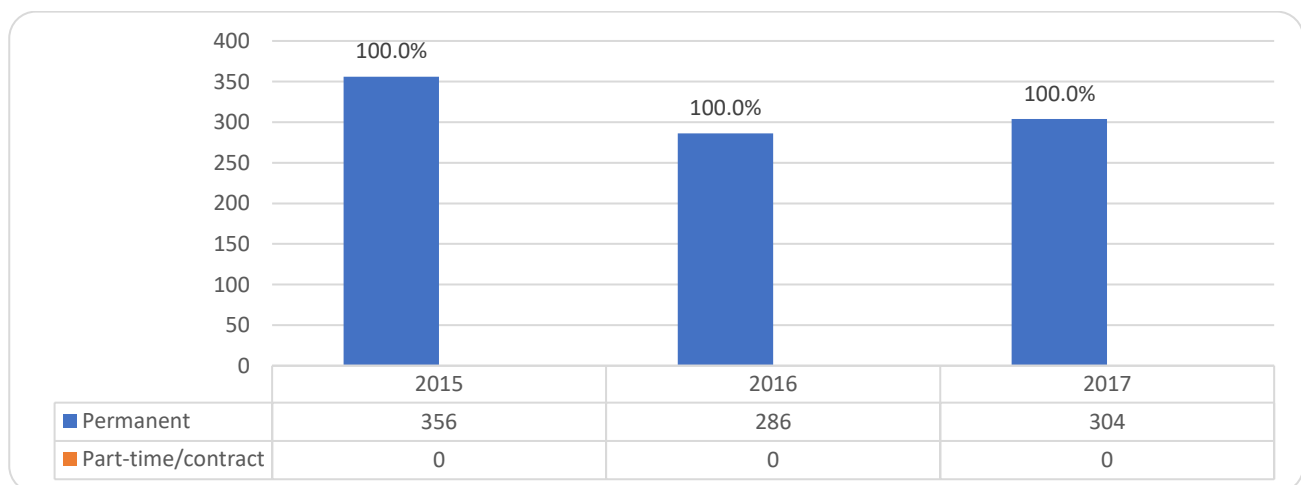


Table 5: Postdoctoral fellows, 2015 - 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 314 | 348 | 385 |

Figure 25: Research income by source, 2015 – 2017 (US \$)

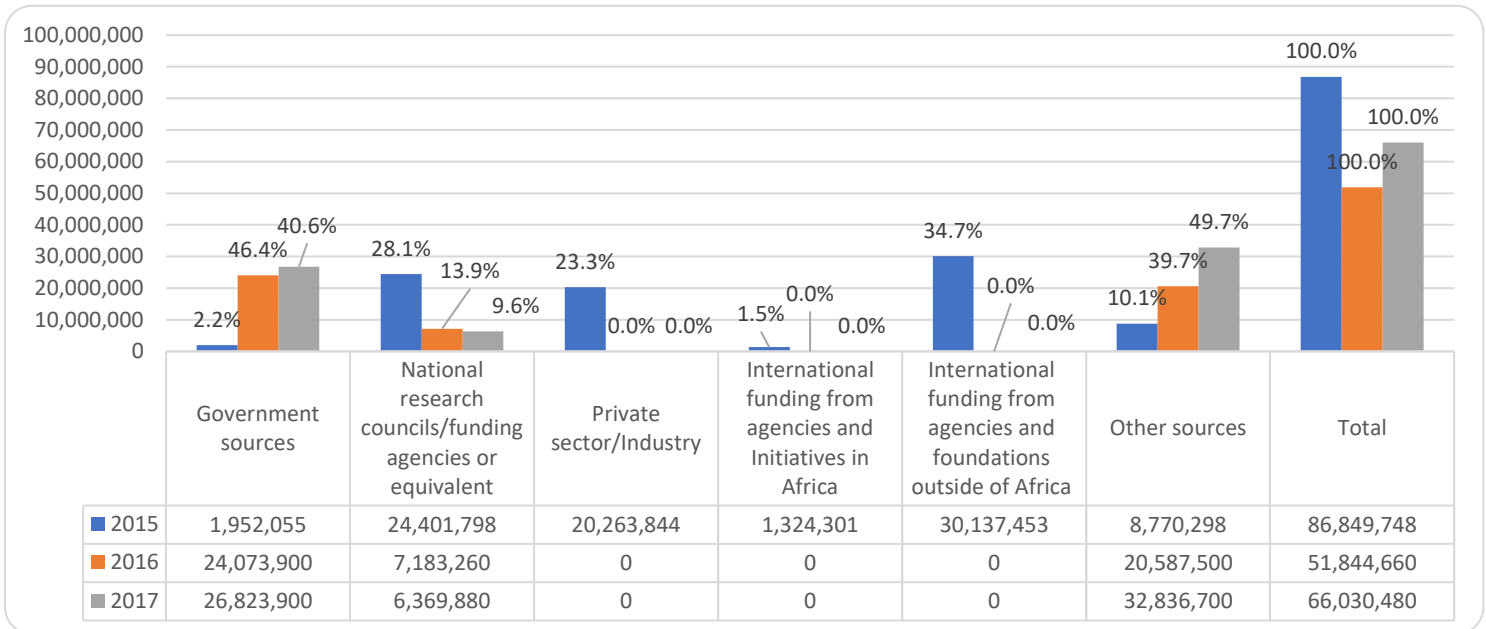


Table 6: Patents, 2017 - 2018

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | 2 | 5 | 2 |

Student enrolments

Figure 1: UG vs. PG enrolment, 2015 – 2017

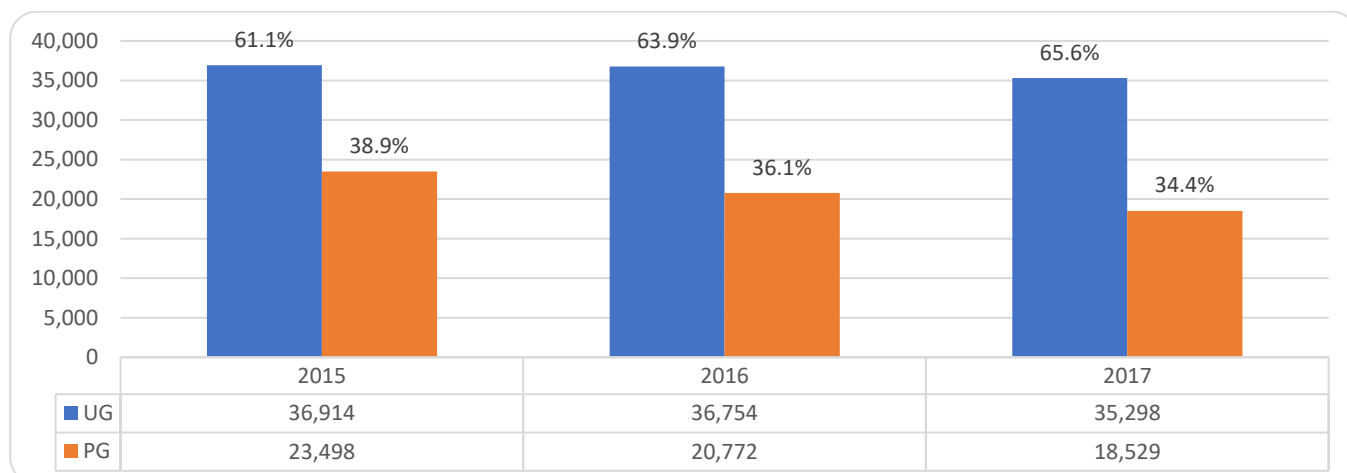


Table 1: Percentage of UG and PG enrolment by study field

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 9.6% | 3.8% | 13.4% | 10.1% | 4.0% | 14.1% | 10.4% | 4.1% | 14.6% |
| Engineering and Technology | 10.9% | 5.4% | 16.3% | 11.4% | 5.2% | 16.6% | 12.0% | 5.3% | 17.3% |
| Medical and Health sciences | 8.7% | 2.5% | 11.2% | 9.7% | 2.7% | 12.3% | 10.7% | 2.8% | 13.5% |
| Agricultural sciences | 2.6% | 1.4% | 4.0% | 2.8% | 1.6% | 4.4% | 3.2% | 1.6% | 4.7% |
| Social sciences | 11.4% | 19.3% | 30.8% | 11.4% | 16.4% | 27.8% | 10.9% | 14.1% | 25.0% |
| Humanities | 6.7% | 2.0% | 8.8% | 7.0% | 1.9% | 8.9% | 6.9% | 1.9% | 8.8% |
| Business, Economics and Management Studies | 11.1% | 4.4% | 15.6% | 11.6% | 4.4% | 16.0% | 11.5% | 4.7% | 16.2% |
| Total | 61.1% | 38.9% | 100.0% | 63.9% | 36.1% | 100.0% | 65.6% | 34.4% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 – 2017

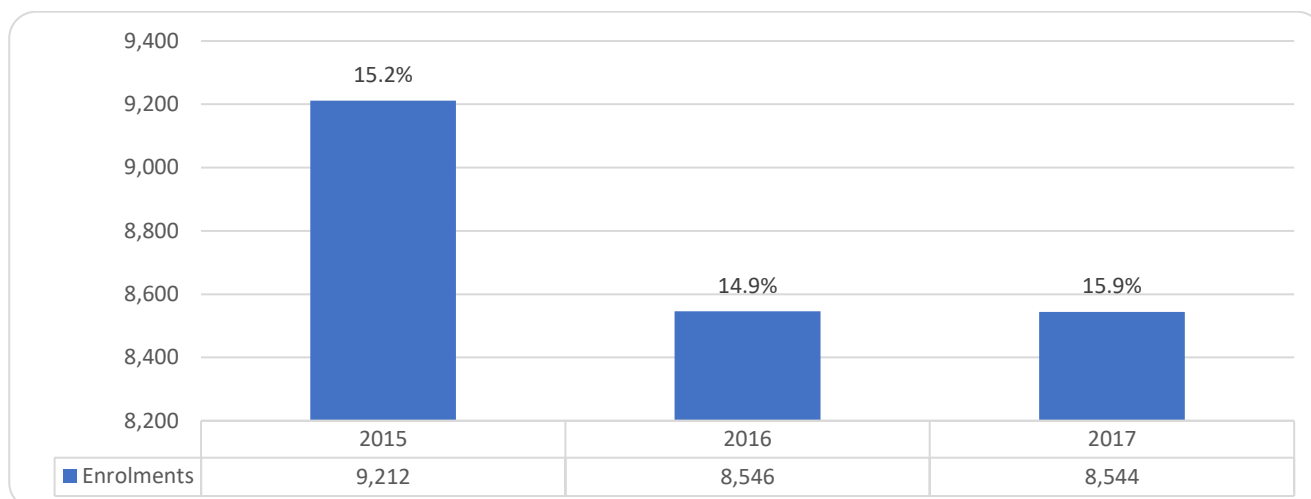


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 2.4% | 2.5% | 2.7% |
| Engineering and Technology | 2.5% | 2.5% | 2.7% |
| Medical and Health sciences | 1.9% | 2.0% | 2.2% |
| Agricultural sciences | 1.2% | 1.3% | 1.4% |
| Social sciences | 2.8% | 2.8% | 3.3% |
| Humanities | 1.5% | 1.4% | 1.3% |
| Business, Economics and Management Studies | 2.9% | 2.4% | 2.4% |
| Total | 15.2% | 14.9% | 15.9% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

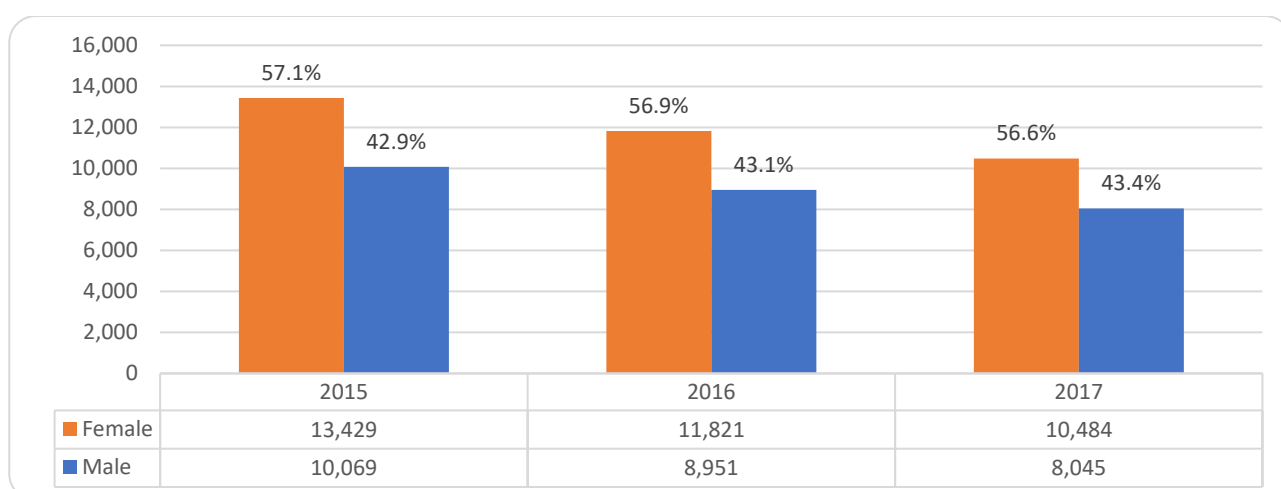


Figure 4: Master’s enrolments by gender, 2015 – 2017

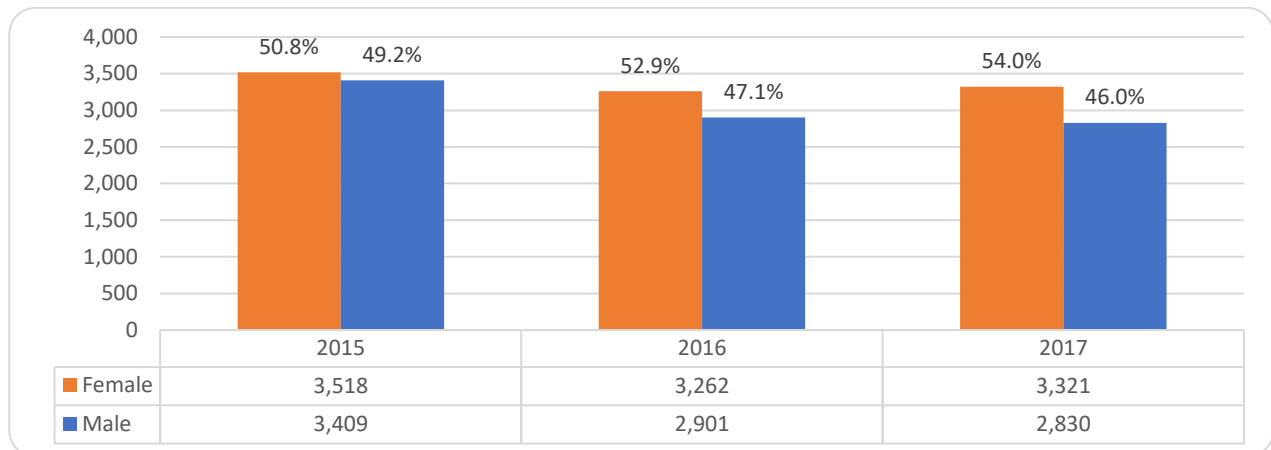
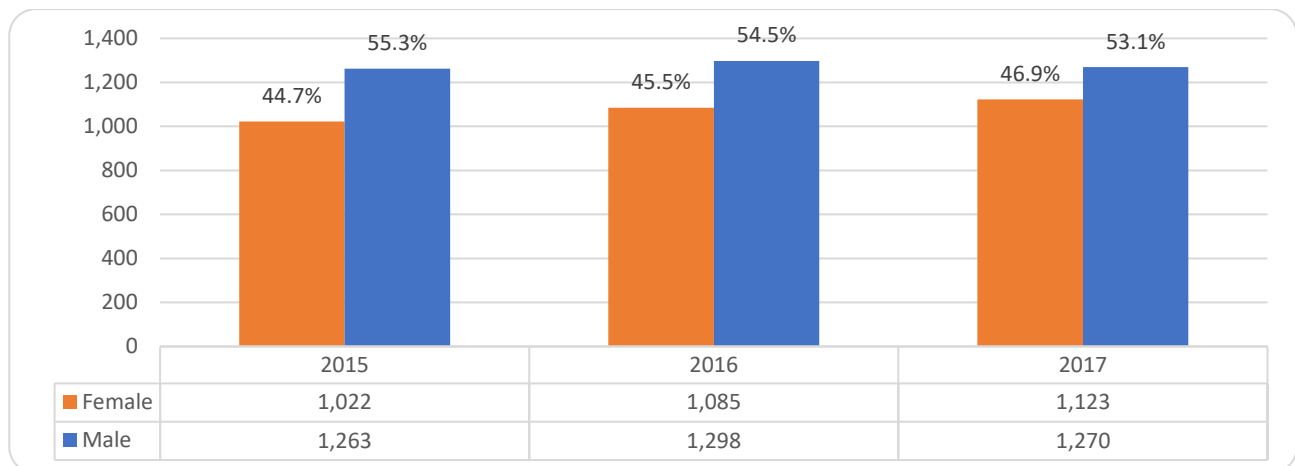


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG vs. PG graduates, 2015 – 2017

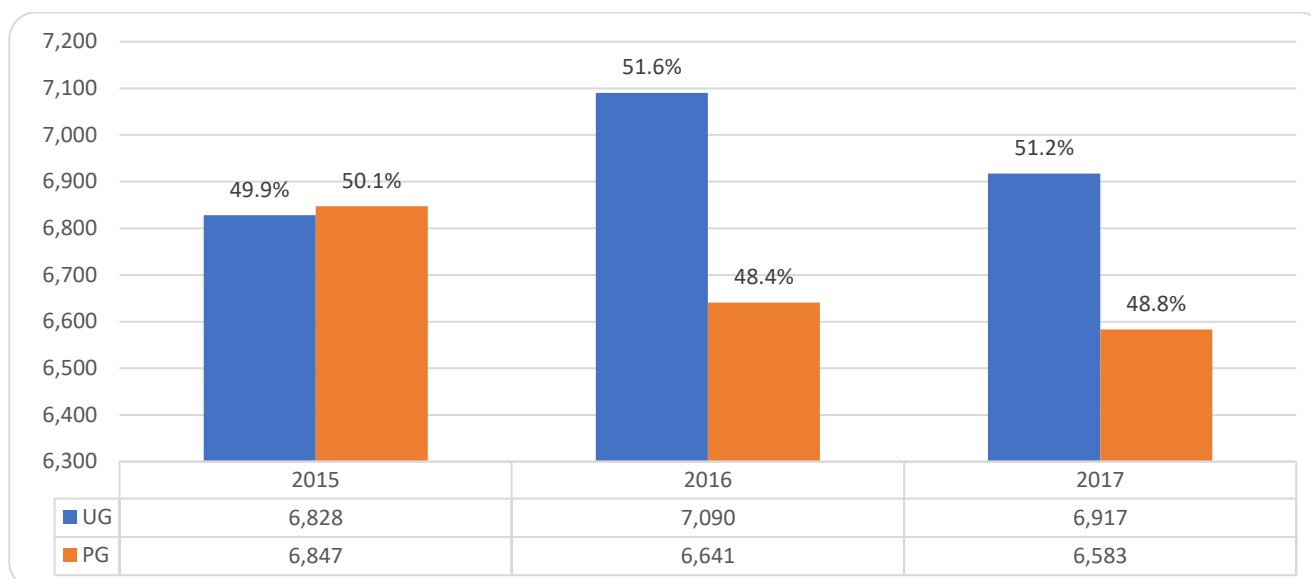


Table 3: UG vs. PG graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 7.1% | 5.5% | 12.6% | 7.1% | 4.9% | 12.0% | 6.9% | 5.6% | 12.5% |
| Engineering and Technology | 7.0% | 8.0% | 15.0% | 6.5% | 7.2% | 13.7% | 7.3% | 7.2% | 14.5% |
| Medical and Health sciences | 6.0% | 2.6% | 8.6% | 6.5% | 3.3% | 9.8% | 7.1% | 3.2% | 10.3% |
| Agricultural sciences | 2.1% | 1.5% | 3.5% | 1.8% | 1.4% | 3.2% | 1.9% | 1.3% | 3.2% |
| Social sciences | 10.2% | 18.5% | 28.8% | 11.0% | 16.4% | 27.4% | 10.3% | 15.4% | 25.6% |
| Humanities | 6.6% | 2.9% | 9.5% | 6.9% | 2.8% | 9.6% | 6.1% | 2.8% | 8.9% |
| Business, Economics and Management Studies | 10.9% | 11.1% | 22.0% | 11.9% | 12.3% | 24.3% | 11.6% | 13.3% | 24.9% |
| Total | 49.9% | 50.1% | 100.0% | 51.6% | 48.4% | 100.0% | 51.2% | 48.8% | 100.0% |

Figure 7: M & D enrolments as a % of total enrolments, 2015 – 2017

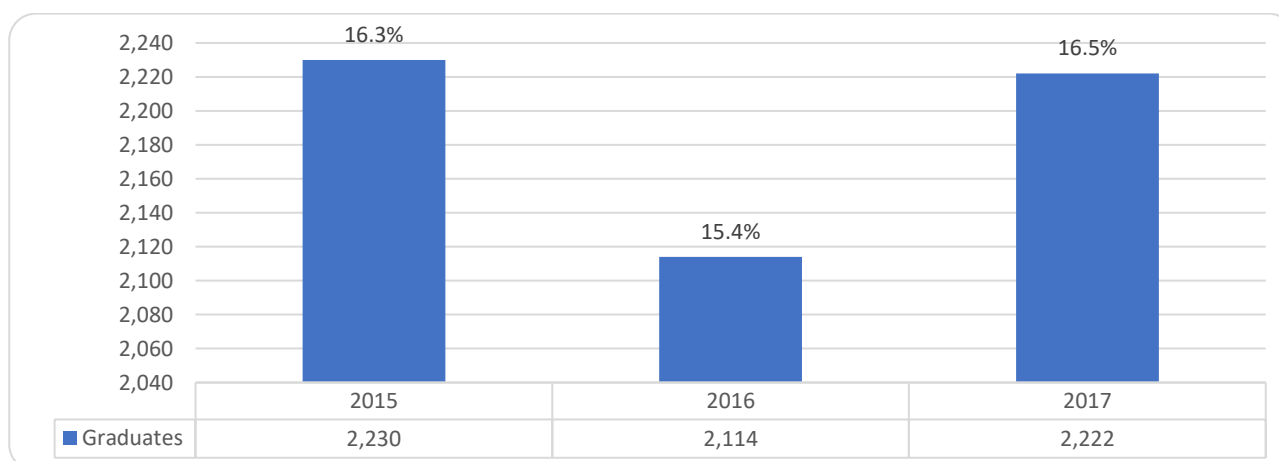


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 2.3% | 1.8% | 2.4% |
| Engineering and Technology | 2.7% | 2.5% | 2.7% |
| Medical and Health sciences | 1.4% | 1.6% | 1.7% |
| Agricultural sciences | 1.1% | 1.0% | 1.0% |
| Social sciences | 2.9% | 2.7% | 3.1% |
| Humanities | 1.7% | 1.6% | 1.4% |
| Business, Economics and Management Studies | 4.3% | 4.2% | 4.2% |
| Total | 16.3% | 15.4% | 16.5% |

Figure 8: PhD graduates as a % of total graduates (UG and PG), 2015 – 2017

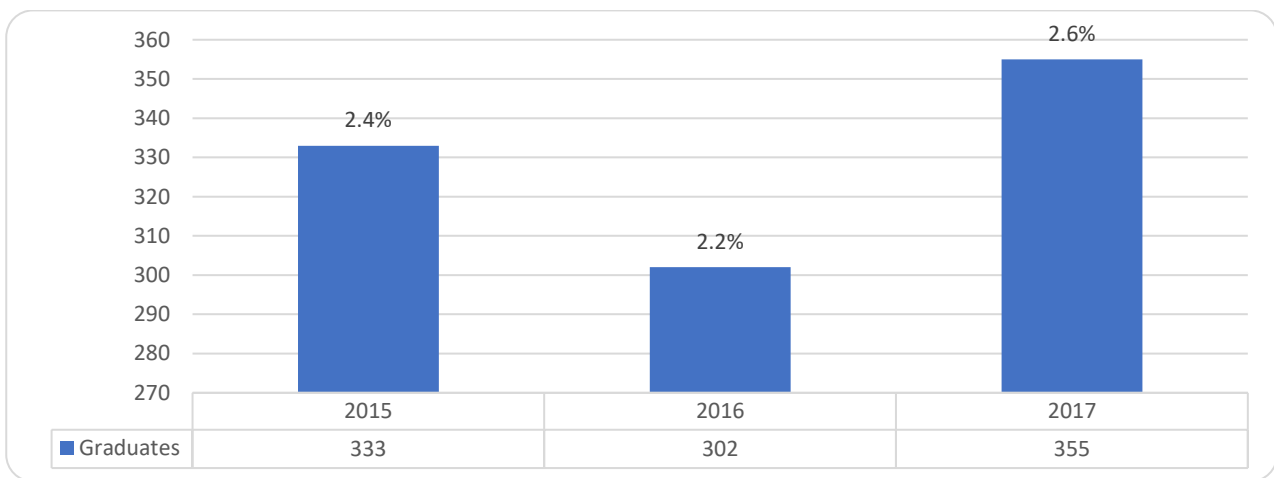


Figure 9: Postgraduate graduates by gender, 2015 – 2017

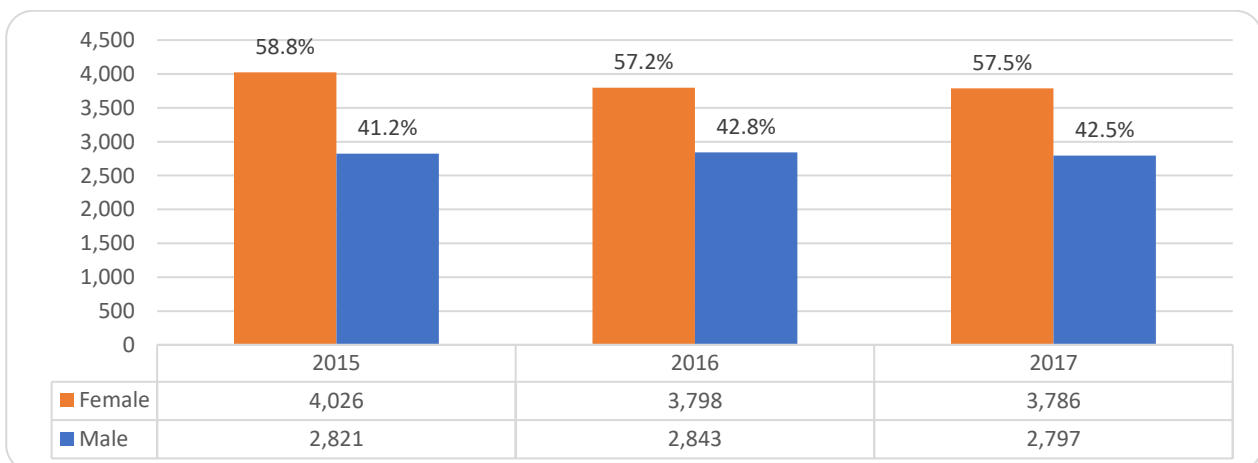


Figure 10: Master’s graduates by gender, 2015 – 2017

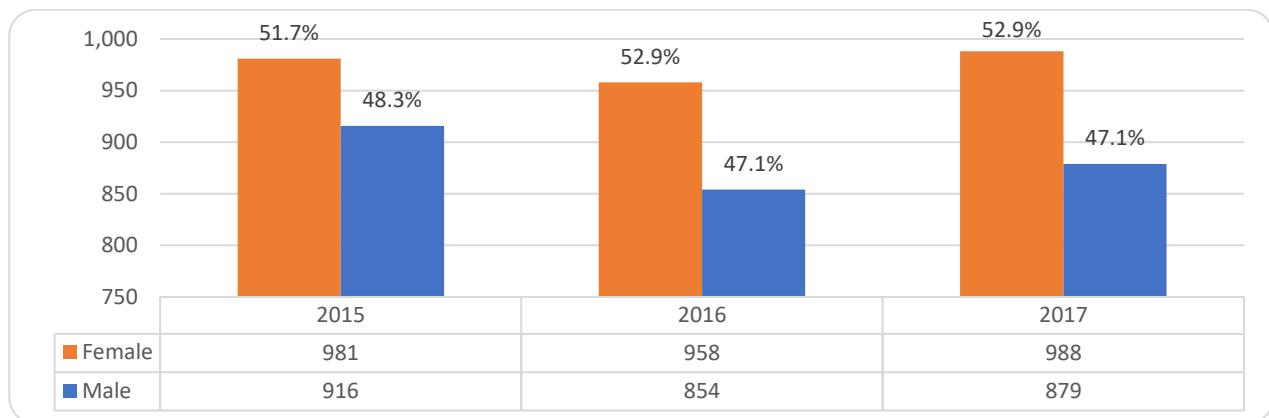


Figure 11: Doctoral graduates by gender, 2015 – 2017

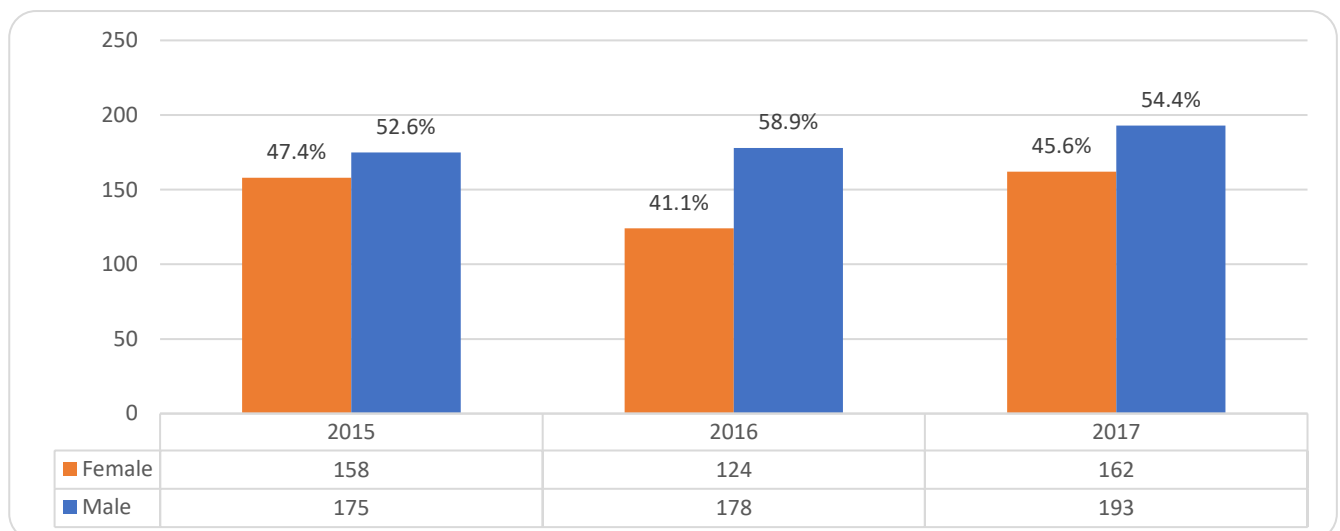
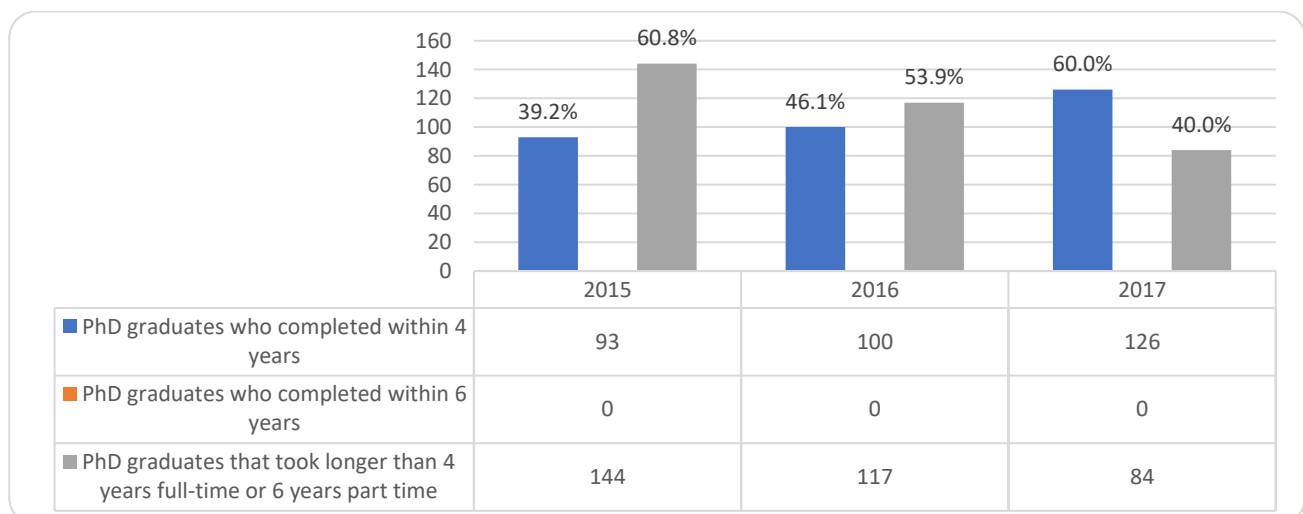


Figure 12: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

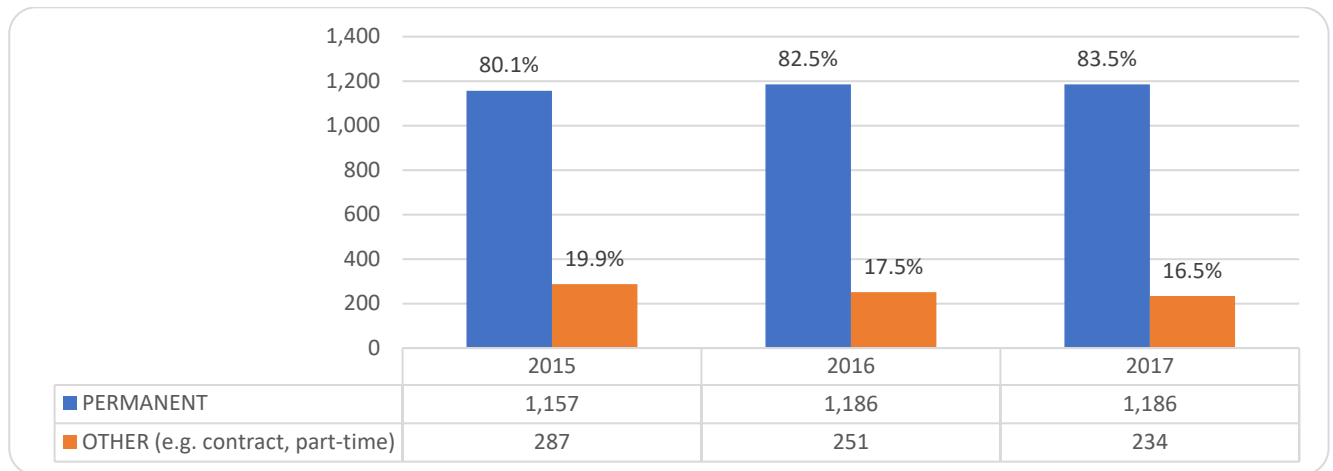


Figure 14: Permanent academic staff by gender as a % of all academic staff, 2015 - 2017

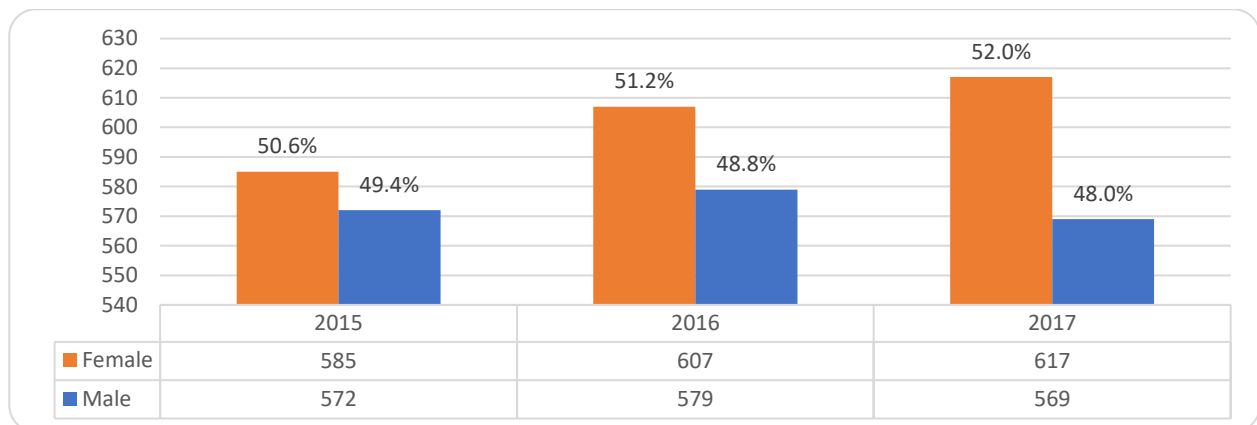


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 - 2017

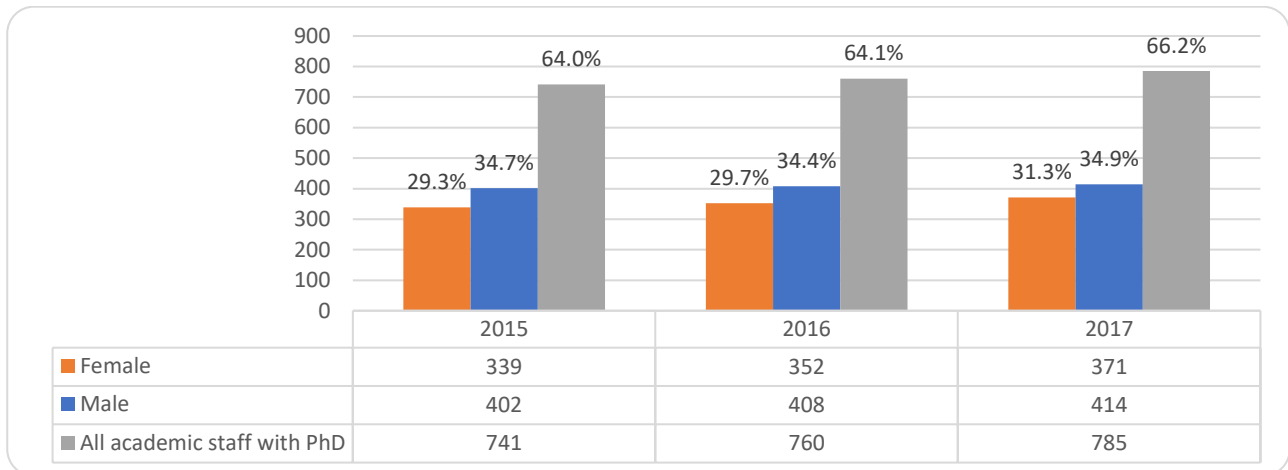


Figure 16: Professors as a % of all academic staff, 2015 – 2017

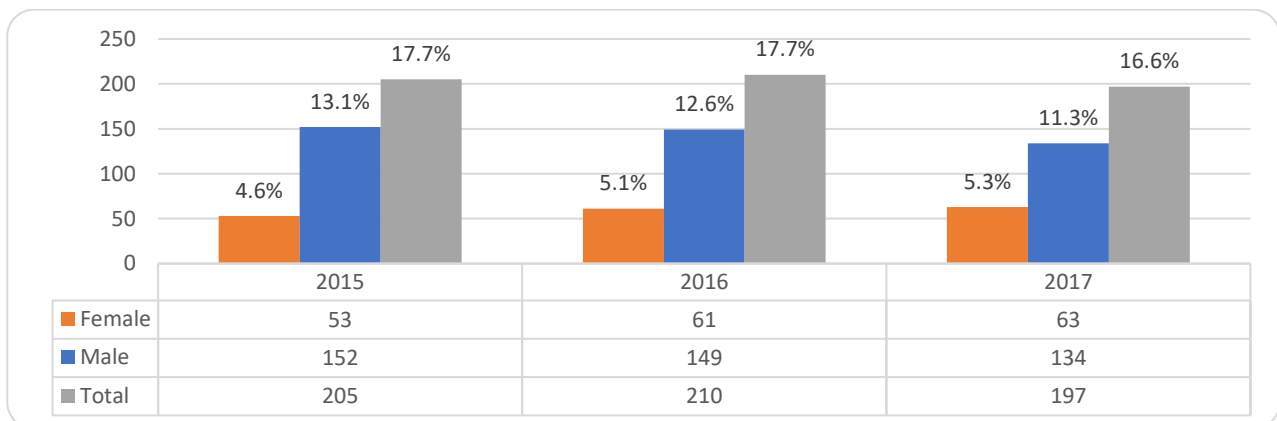


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

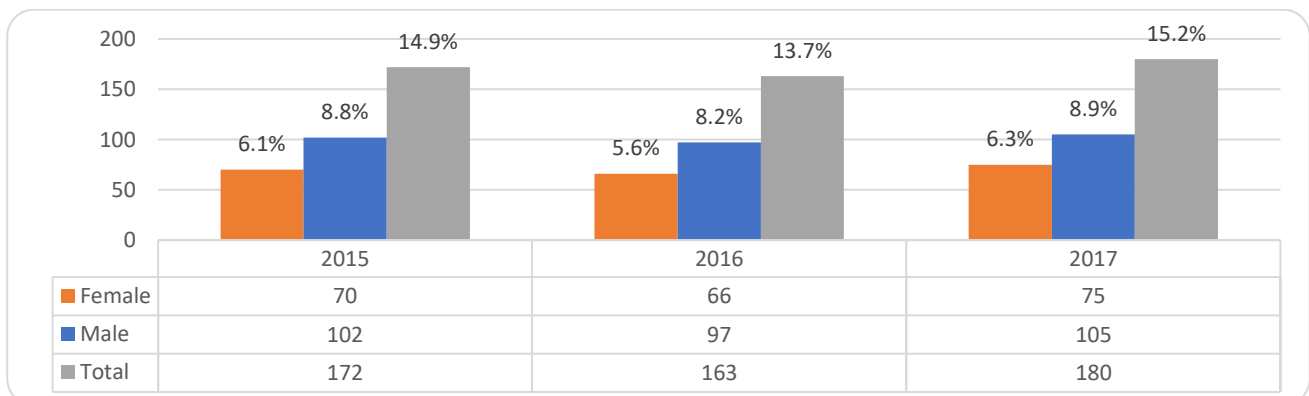


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

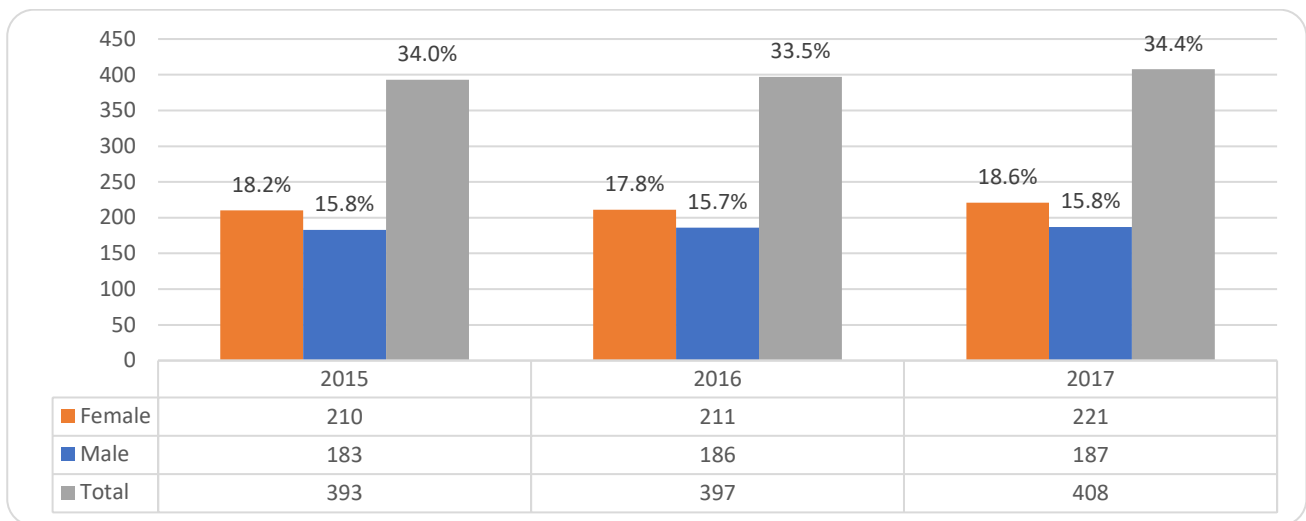


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

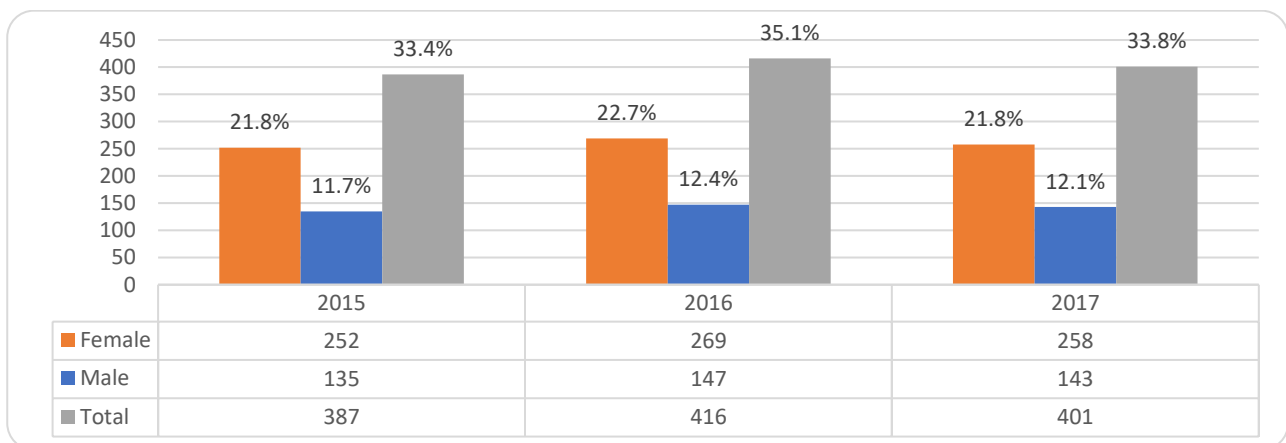


Figure 20: Professors by gender, 2015 – 2017

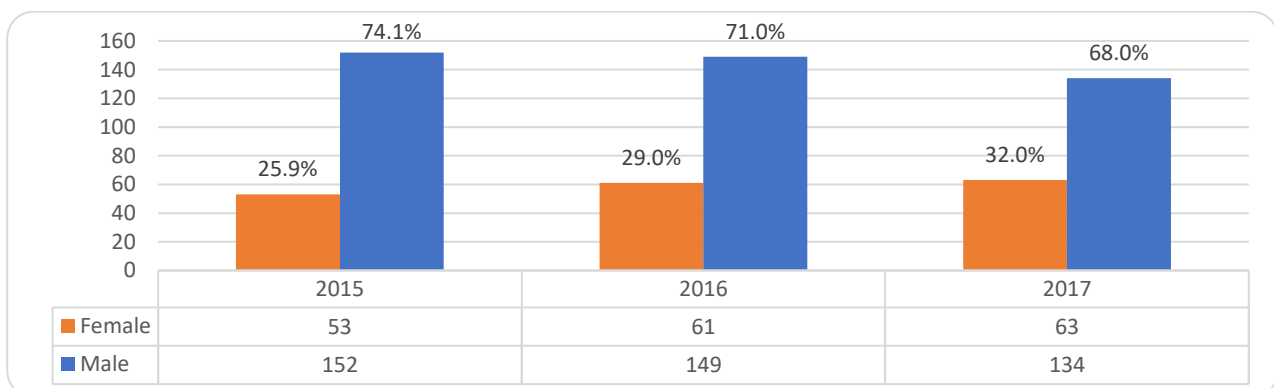


Figure 21: Associate Professors by gender, 2015 – 2017

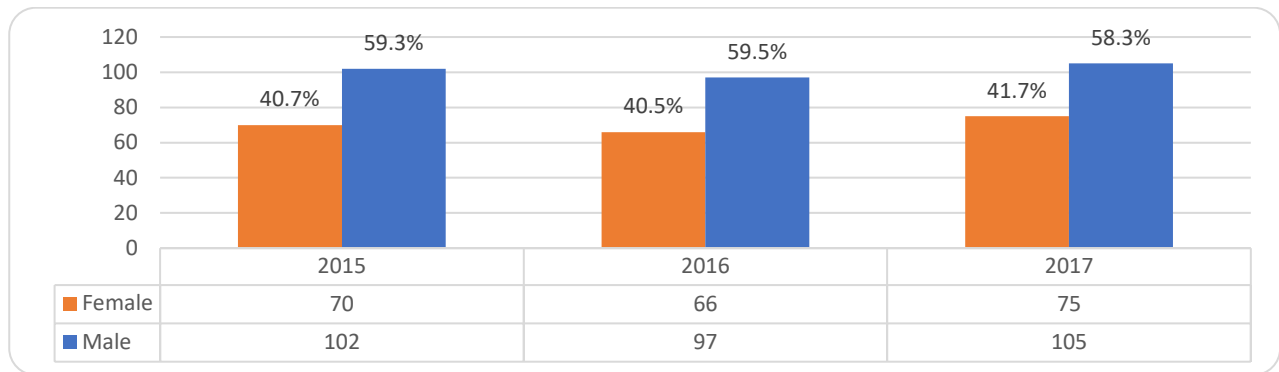


Figure 21: Senior lecturers by gender, 2015 – 2017

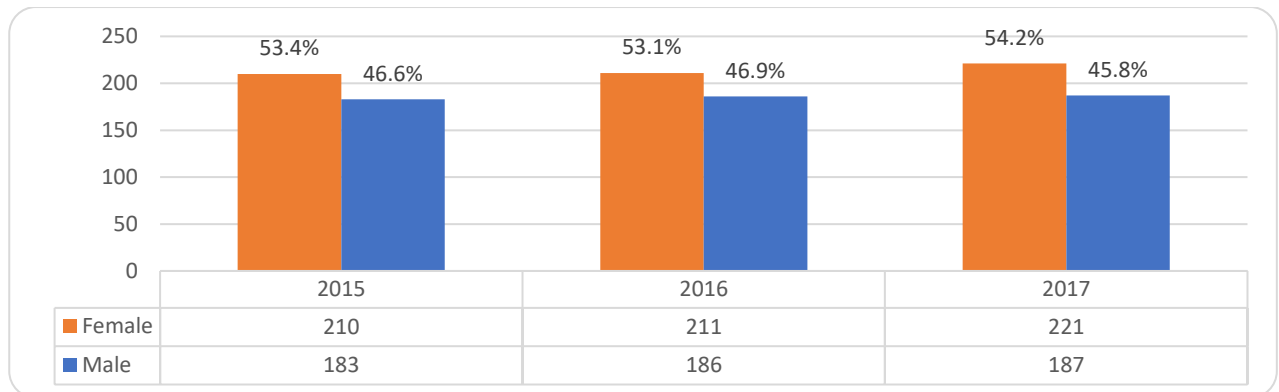


Figure 22: Lectures & other by gender, 2015 – 2017

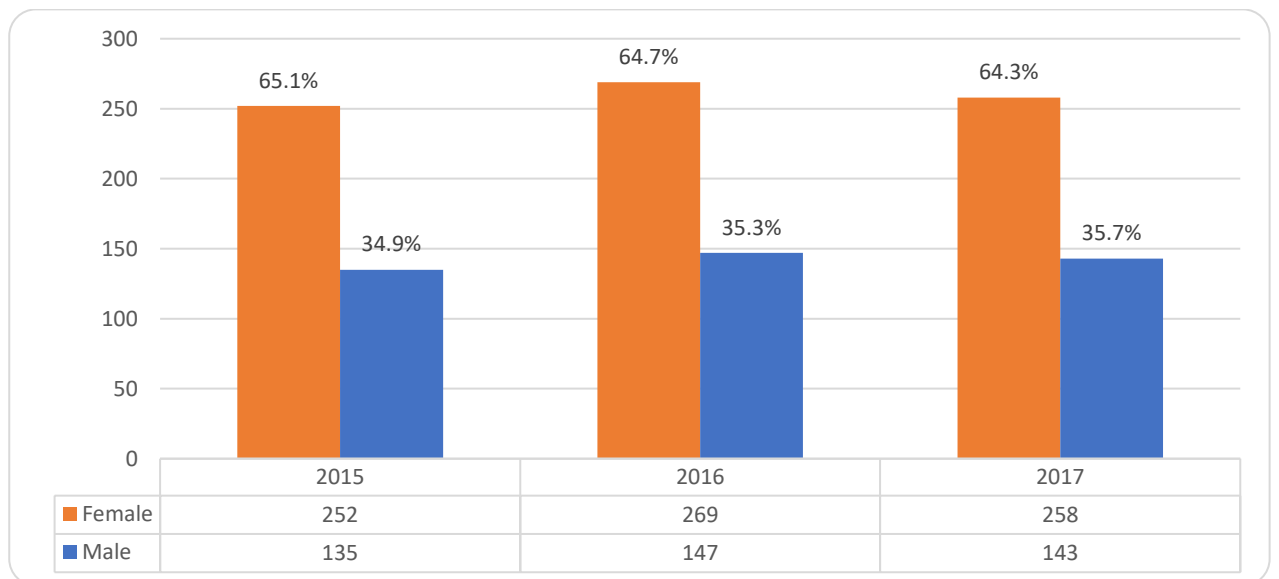


Figure 23: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

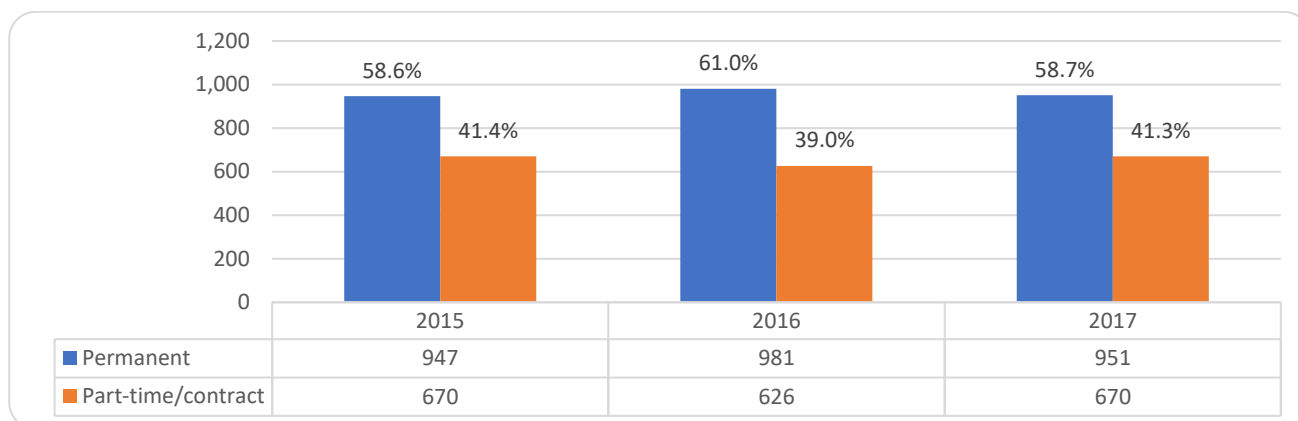


Table 5: Postdoctoral fellows, 2015 - 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 168 | 198 | 229 |

Figure 24: Research income by source, 2015 – 2017 (US \$)

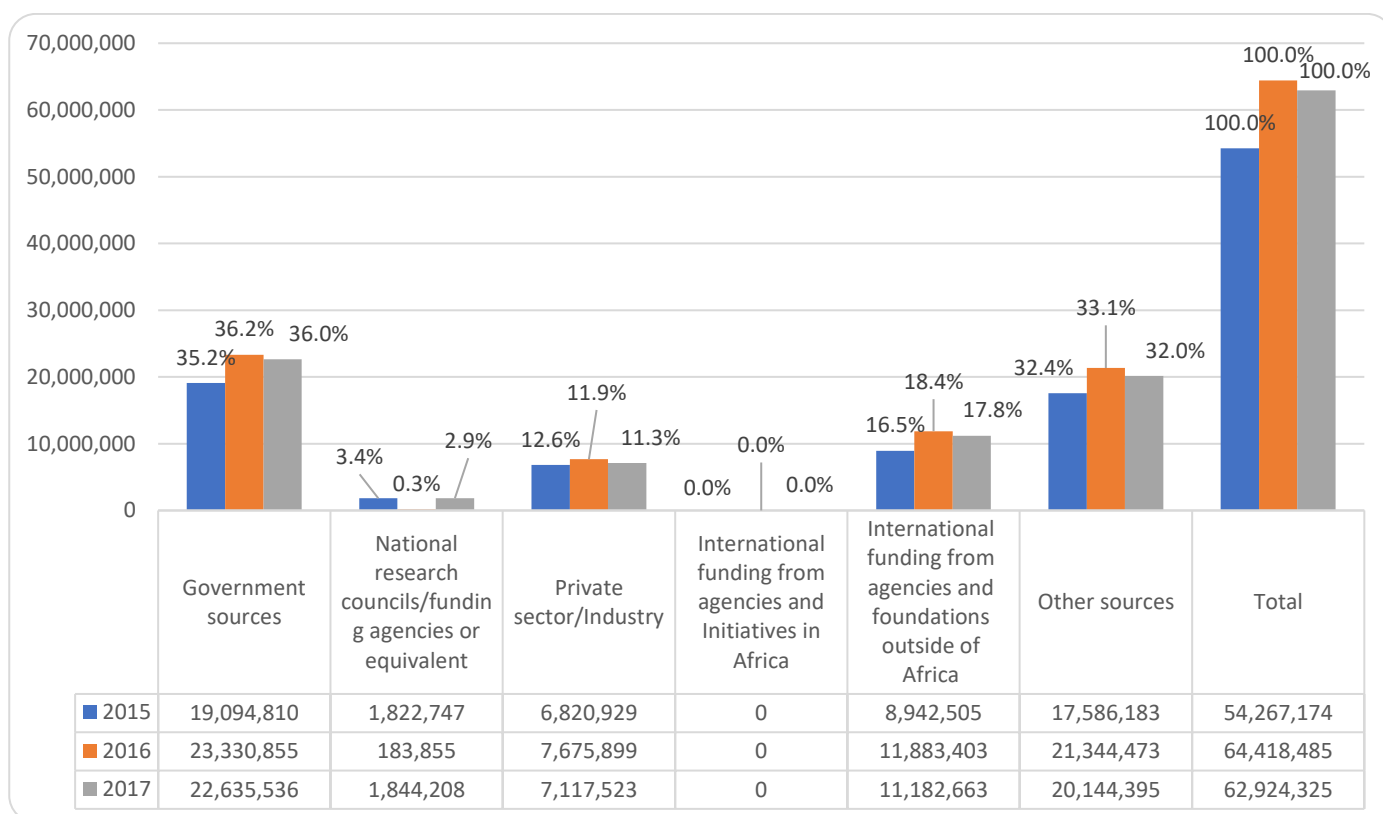


Table 6: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | 8 | 8 | 16 |

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Enrolments

Figure 1: UG vs. PG enrolment, 2015 – 2017

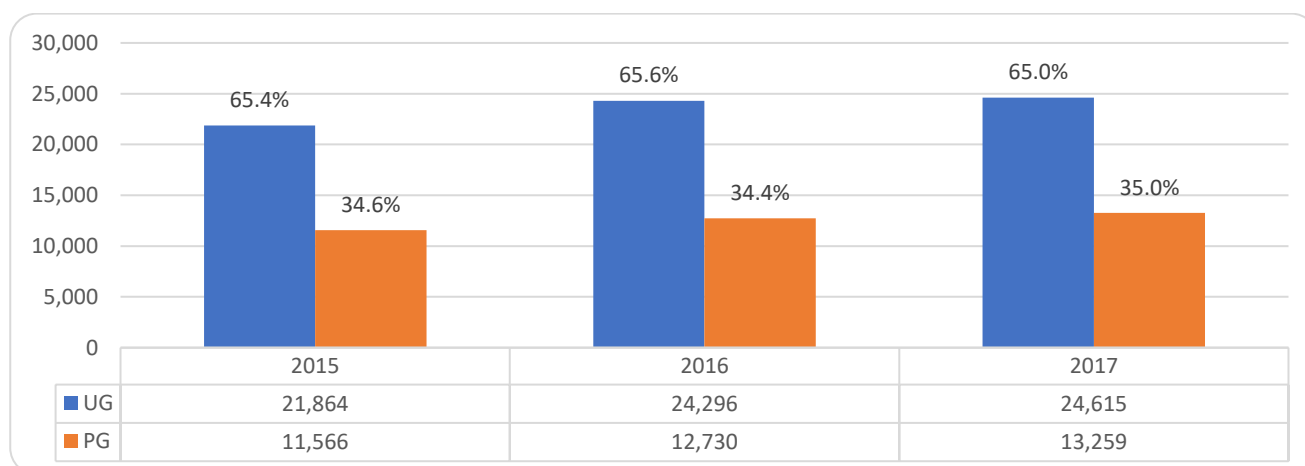


Table 1: Percentage of UG and PG enrolment by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 8.3% | 4.7% | 13.0% | 9.0% | 4.7% | 13.7% | 9.0% | 4.8% | 13.9% |
| Engineering and Technology | 13.6% | 5.4% | 19.1% | 13.7% | 5.4% | 19.0% | 14.0% | 5.5% | 19.5% |
| Medical and Health sciences | 9.3% | 6.5% | 15.8% | 8.8% | 6.4% | 15.2% | 8.8% | 6.4% | 15.2% |
| Agricultural sciences | 0.1% | 0.4% | 0.5% | 0.2% | 0.4% | 0.5% | 0.1% | 0.4% | 0.5% |
| Social sciences | 13.1% | 8.2% | 21.3% | 12.7% | 7.9% | 20.6% | 15.5% | 7.6% | 23.1% |
| Humanities | 8.1% | 1.6% | 9.7% | 8.0% | 1.6% | 9.6% | 4.3% | 1.7% | 6.0% |
| Business, Economics and Management Studies | 12.8% | 7.8% | 20.6% | 13.3% | 8.1% | 21.3% | 13.3% | 8.5% | 21.8% |
| Total | 65.4% | 34.6% | 100.0% | 65.6% | 34.4% | 100.0% | 65.0% | 35.0% | 100.0% |

Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2015 – 2017

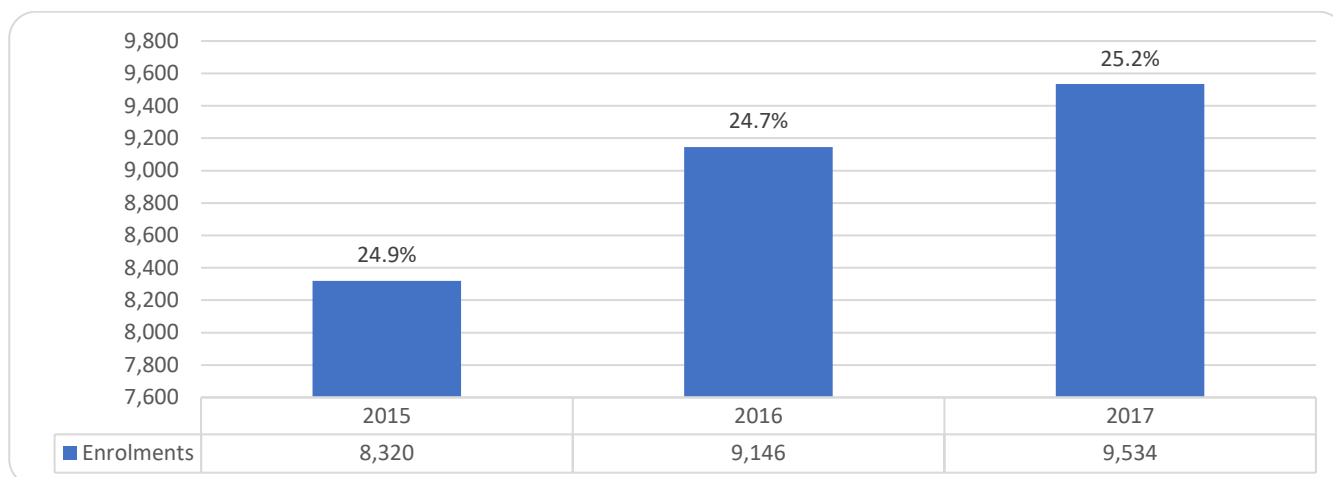


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 3.3% | 3.5% | 3.7% |
| Engineering and Technology | 4.3% | 4.4% | 4.5% |
| Medical and Health sciences | 6.1% | 6.0% | 5.9% |
| Agricultural sciences | 0.4% | 0.4% | 0.4% |
| Social sciences | 5.3% | 5.2% | 5.1% |
| Humanities | 1.2% | 1.1% | 1.2% |
| Business, Economics and Management Studies | 4.3% | 4.2% | 4.4% |
| Total | 24.9% | 24.7% | 25.2% |

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

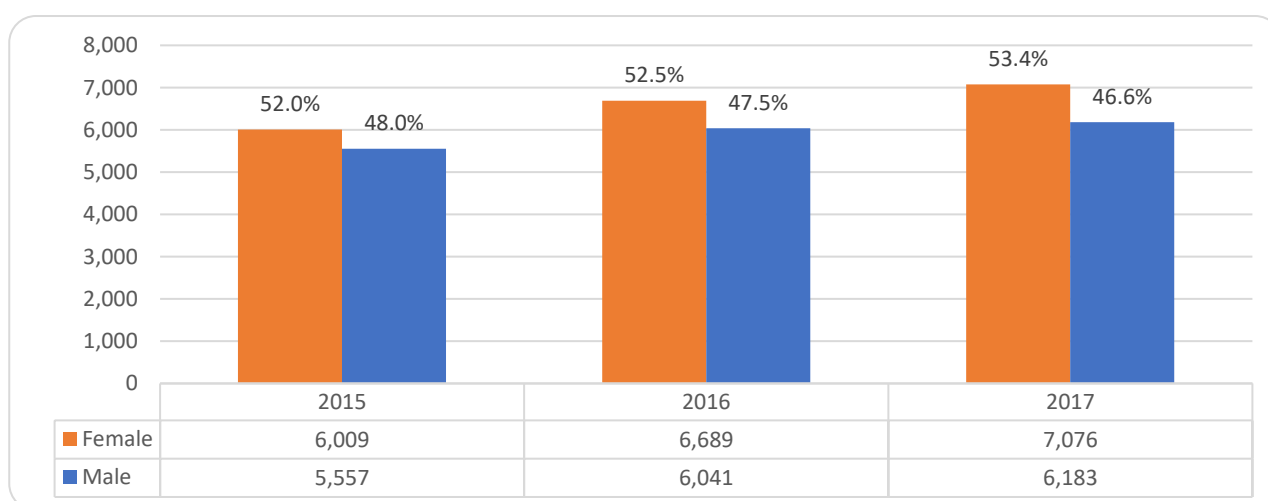


Figure 4: Master’s enrolments by gender, 2015 – 2017

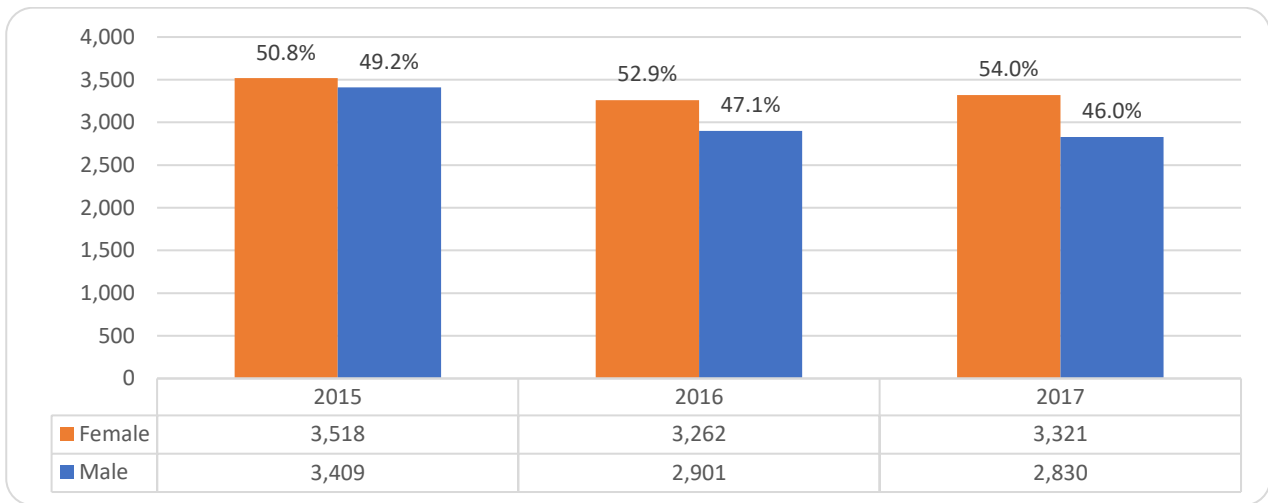
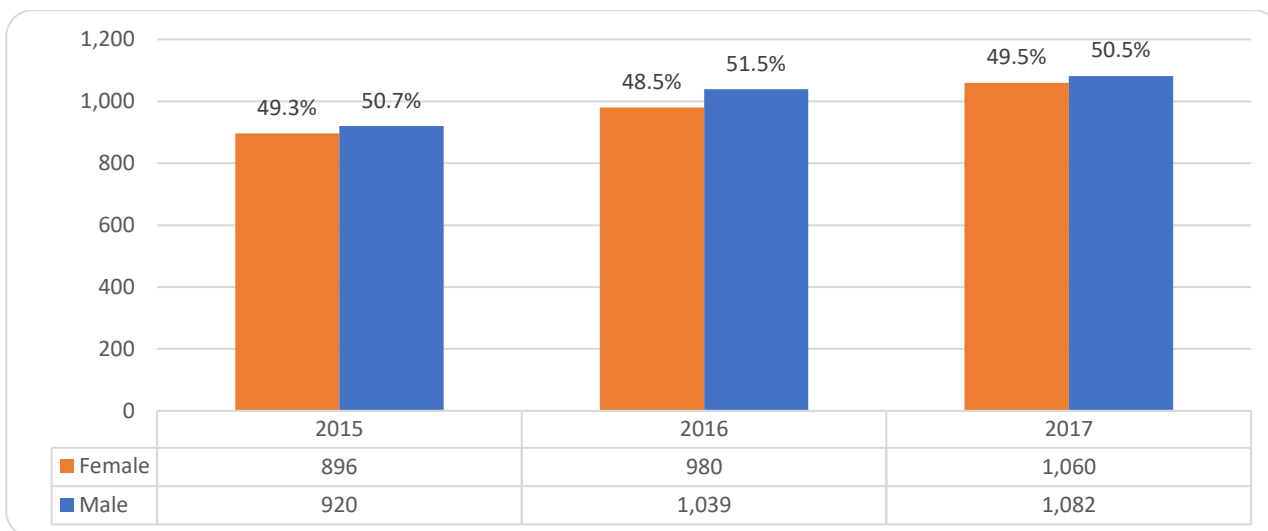


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG and PG graduates as a % of total graduates, 2015 - 2017

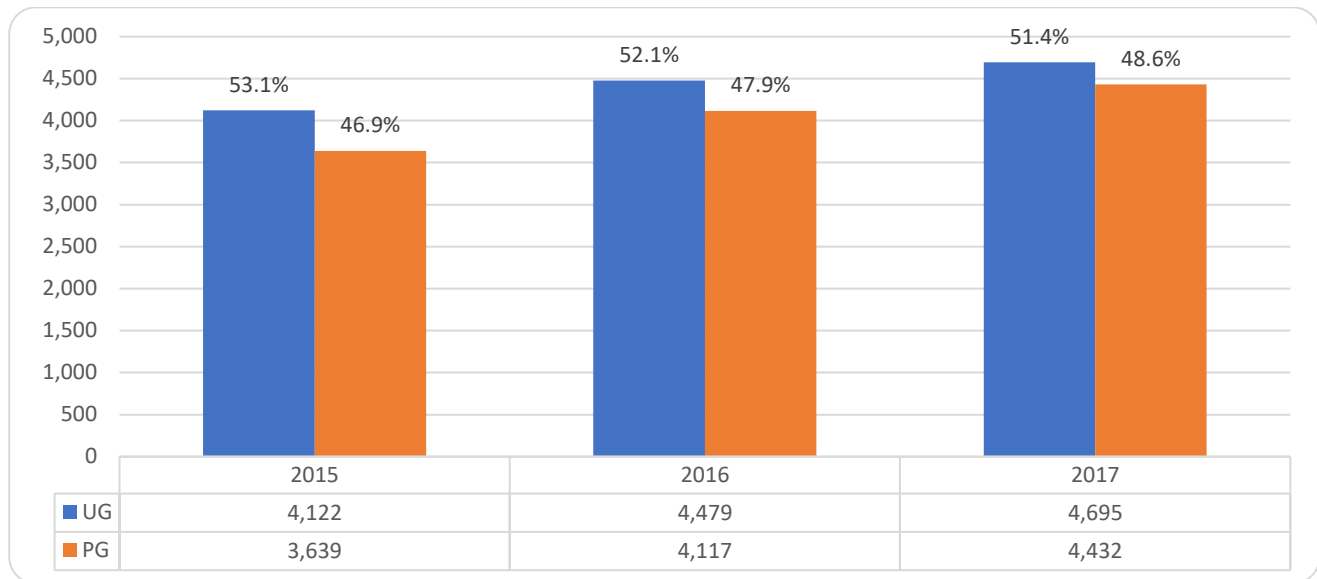


Table 3: UG vs. PG graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|--|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural sciences | 6.8% | 7.3% | 14.1% | 7.1% | 6.9% | 13.9% | 6.9% | 7.2% | 14.1% |
| Engineering and Technology | 8.9% | 6.4% | 15.2% | 9.3% | 6.2% | 15.5% | 7.3% | 6.8% | 14.1% |
| Medical and Health sciences | 6.8% | 4.4% | 11.2% | 7.1% | 4.5% | 11.7% | 6.4% | 6.1% | 12.5% |
| Agricultural sciences | 0.5% | 0.3% | 0.8% | 0.6% | 0.3% | 1.0% | 0.3% | 0.2% | 0.6% |
| Social sciences | 17.3% | 12.2% | 29.6% | 16.5% | 12.8% | 29.3% | 17.5% | 11.5% | 29.0% |
| Humanities | 3.2% | 2.5% | 5.6% | 2.8% | 1.9% | 4.7% | 2.6% | 2.5% | 5.2% |
| Business, Economics and Management Studies | 9.6% | 13.8% | 23.4% | 8.6% | 15.3% | 23.9% | 10.3% | 14.1% | 24.5% |
| Total | 53.1% | 46.9% | 100.0% | 52.1% | 47.9% | 100.0% | 51.4% | 48.6% | 100.0% |

Figure 7: M & D graduates as a % of total graduates, 2015 – 2017

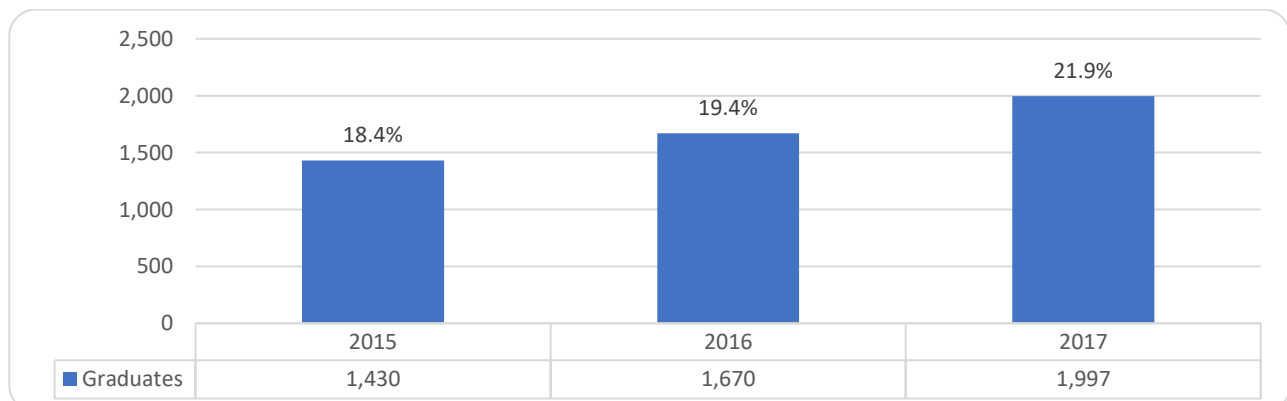


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|--|--------------|--------------|--------------|
| Natural sciences | 2.2% | 2.4% | 3.1% |
| Engineering and Technology | 3.6% | 3.3% | 4.1% |
| Medical and Health sciences | 3.1% | 3.8% | 4.4% |
| Agricultural sciences | 0.3% | 0.3% | 0.2% |
| Social sciences | 4.1% | 4.5% | 4.6% |
| Humanities | 0.9% | 0.7% | 1.0% |
| Business, Economics and Management Studies | 4.2% | 4.4% | 4.4% |
| Total | 18.4% | 19.4% | 21.9% |

Figure 8: PhD graduates as a % of total graduates (UG and PG), 2015 – 2017

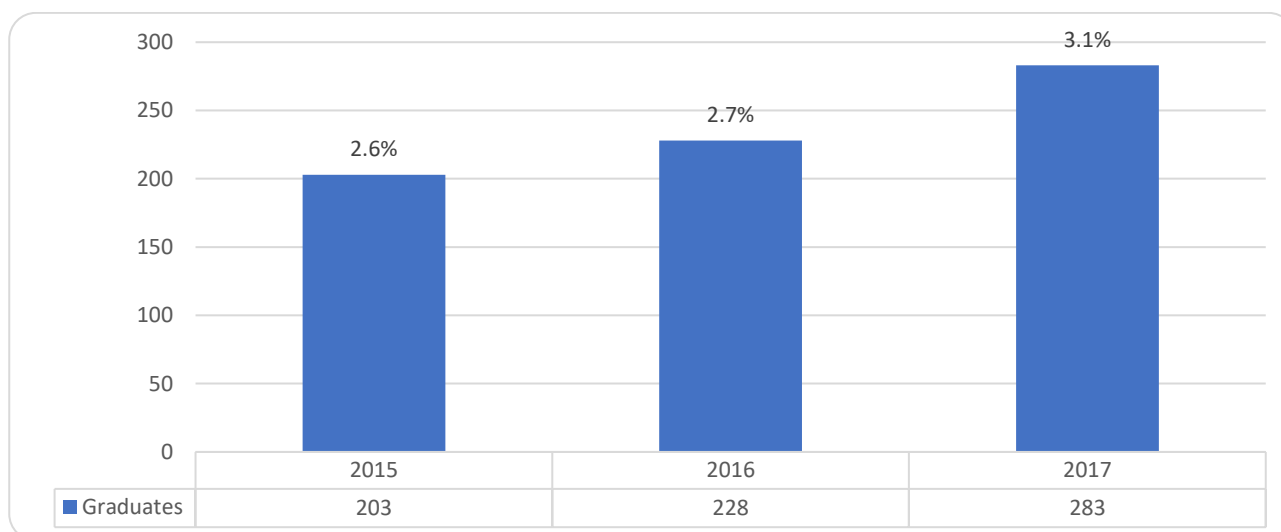


Figure 9: Postgraduate graduates by gender, 2015 – 2017

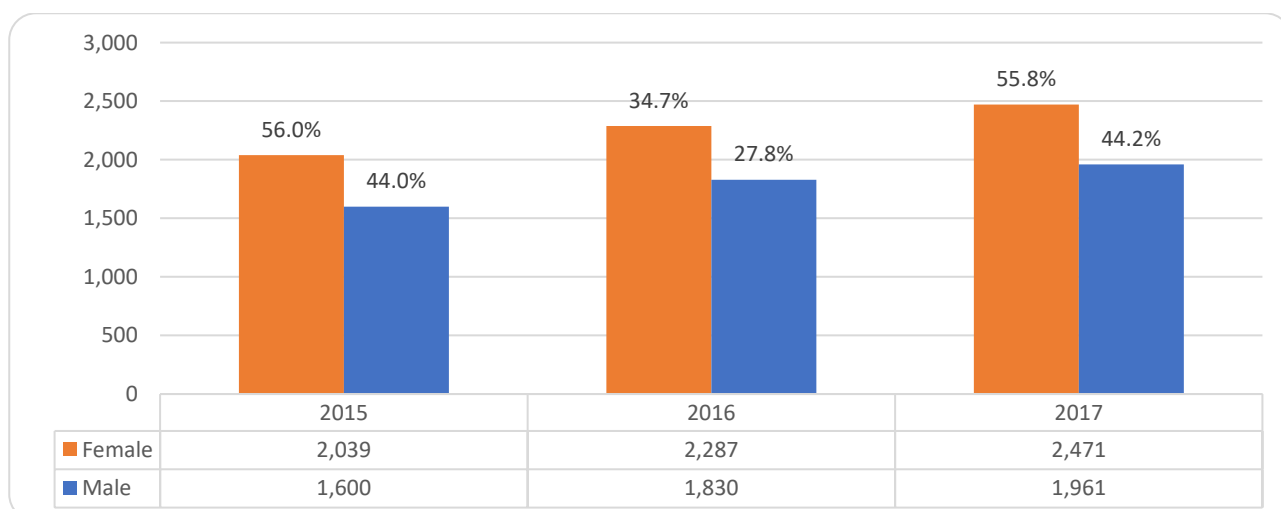


Figure 10: Master's graduates by gender, 2015 – 2017

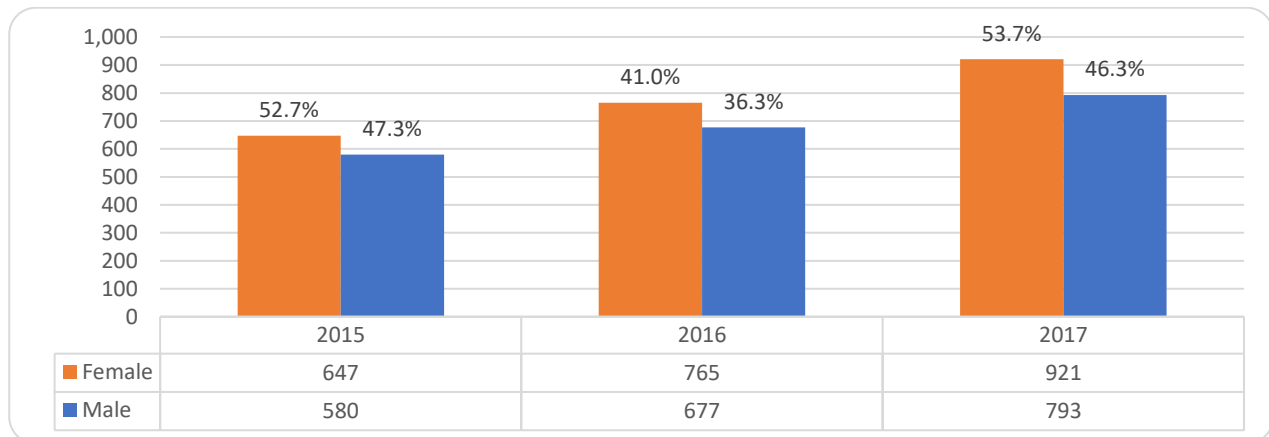


Figure 11: Doctoral graduates by gender, 2015 – 2016

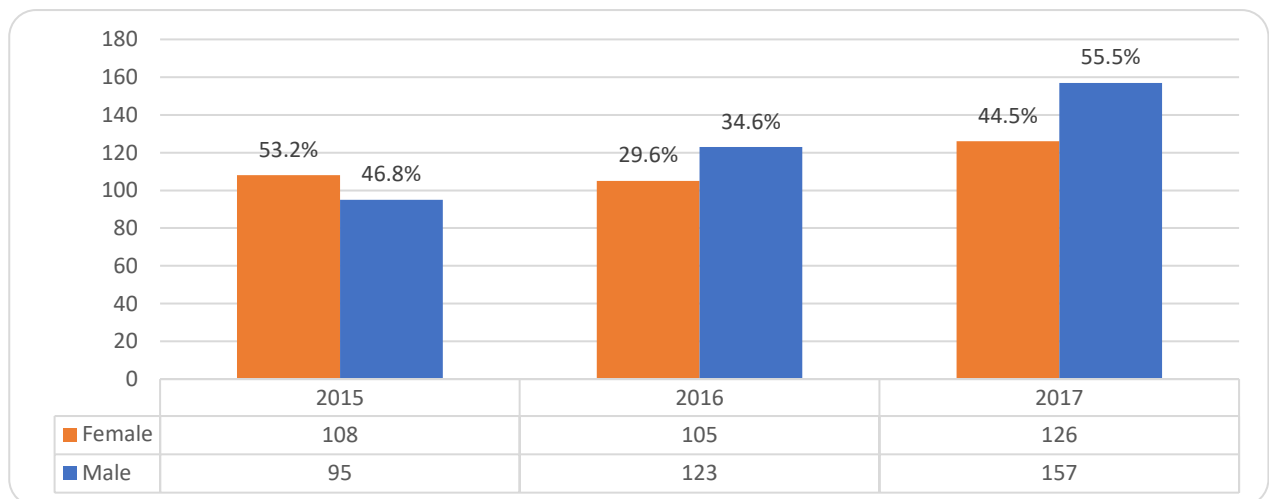
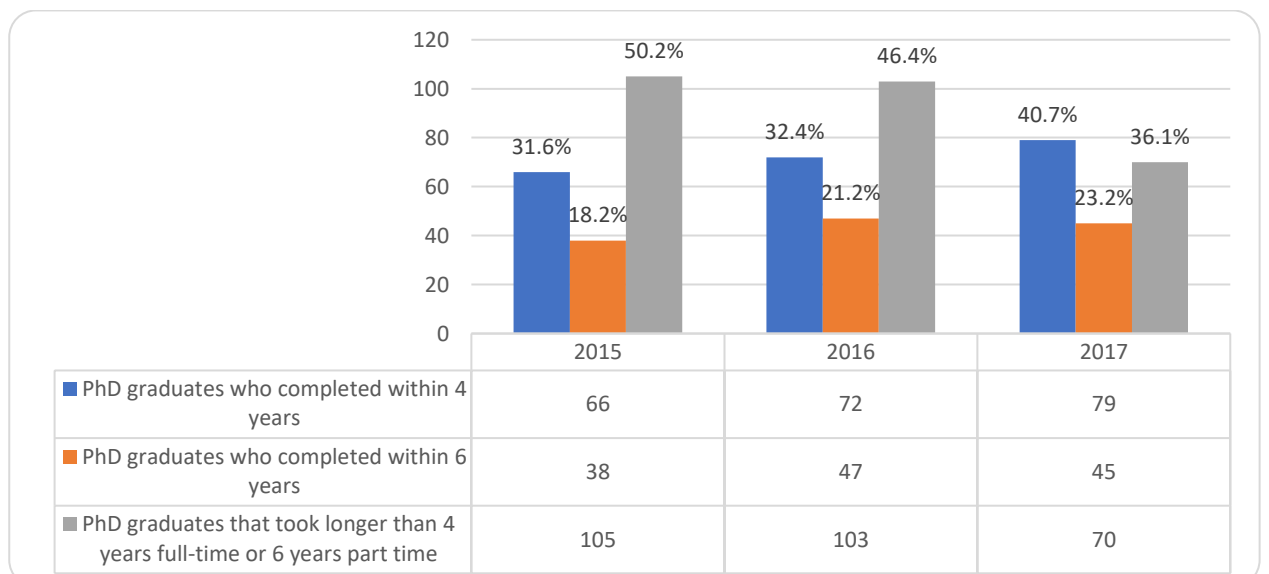


Figure 12: Percentage of PhD graduates by completion time, 2015 - 2017



Staff

Figure 13: Permanent and part-time academic staff as a % of all academic staff, 2015 – 2017

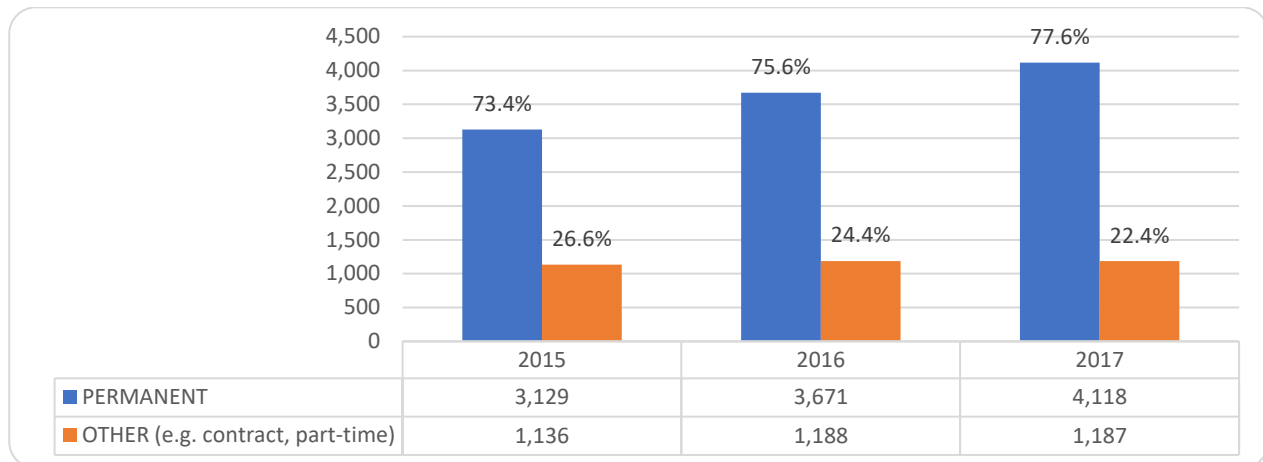


Figure 14: Permanent academic staff by gender as a % of all academic staff

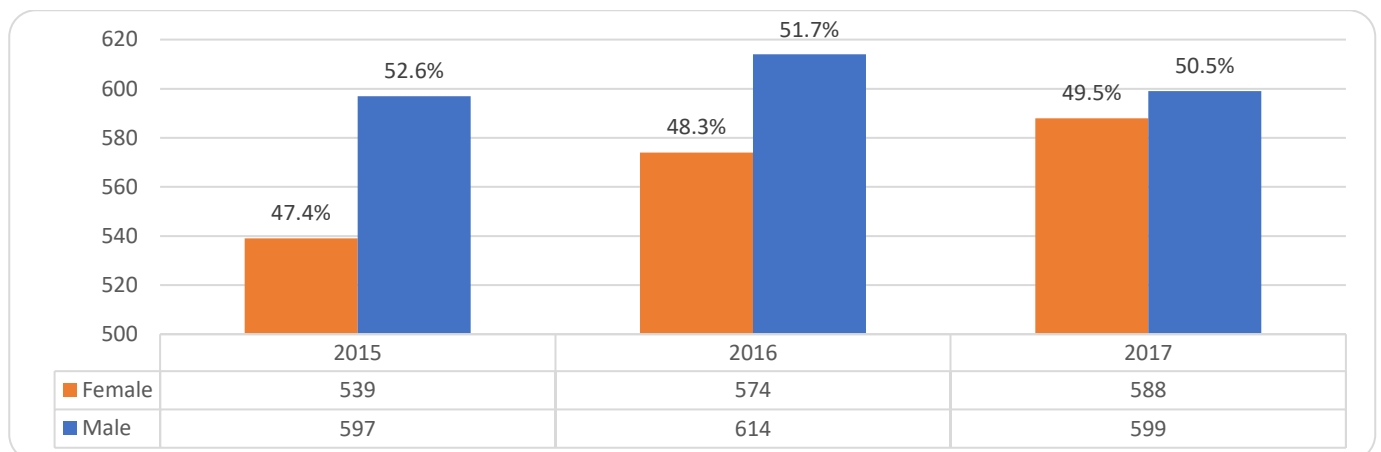


Figure 15: Permanent academic staff with PhD as a % of all permanent academic staff

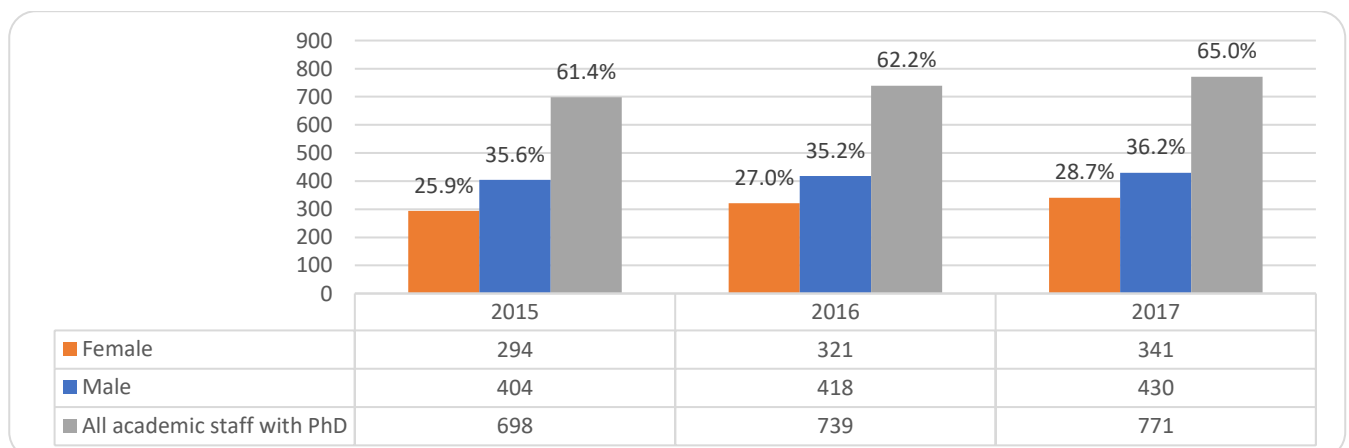


Figure 16: Professors as a % of all academic staff, 2015 – 2017

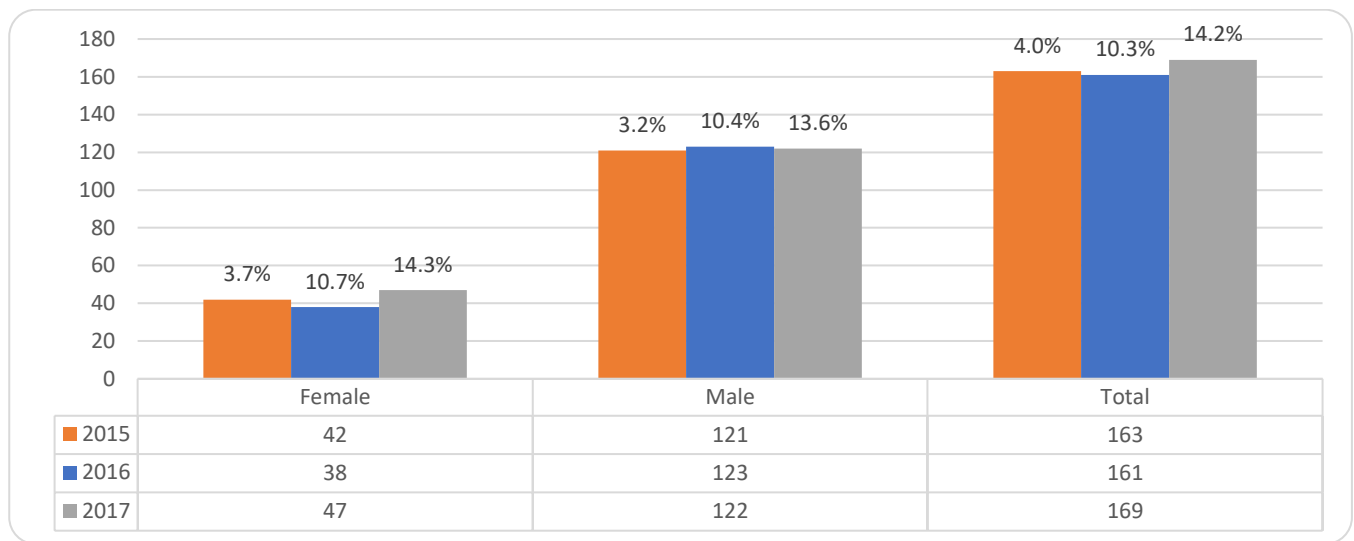


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

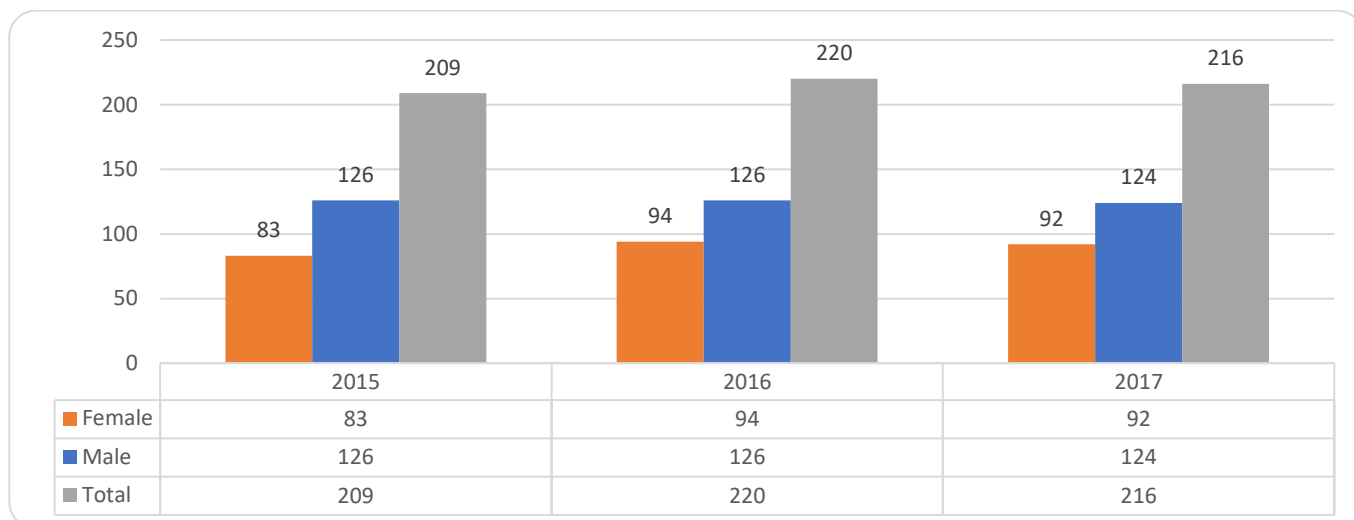


Figure 18: Senior lecturers as a % of all academic staff

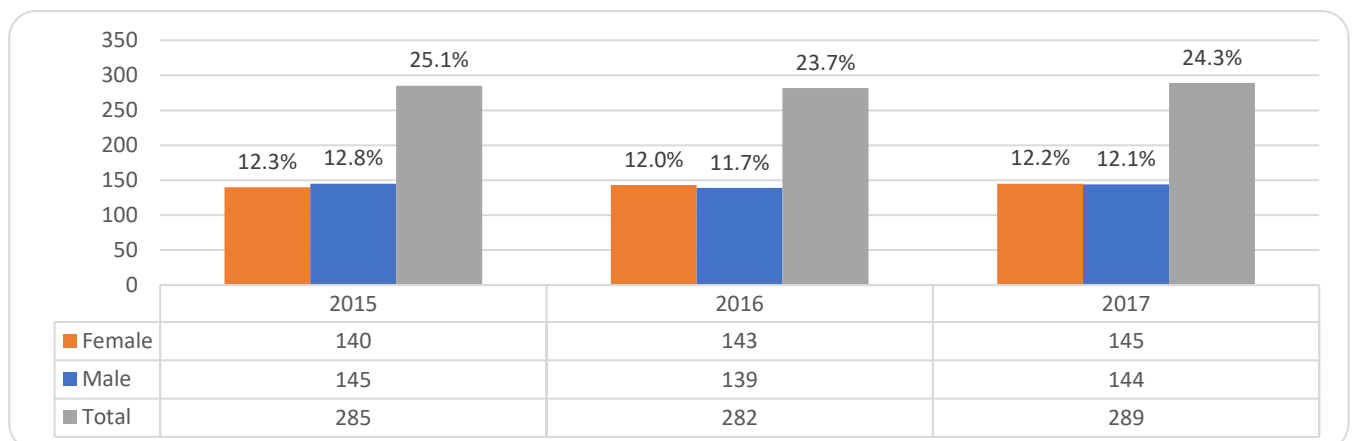


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

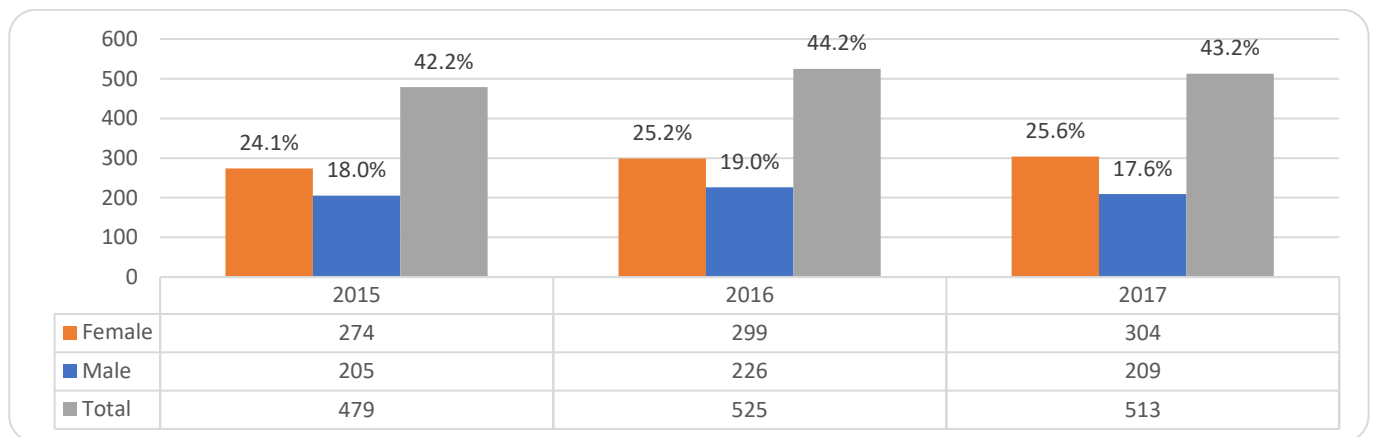


Figure 20: Professors by gender, 2015 – 2017

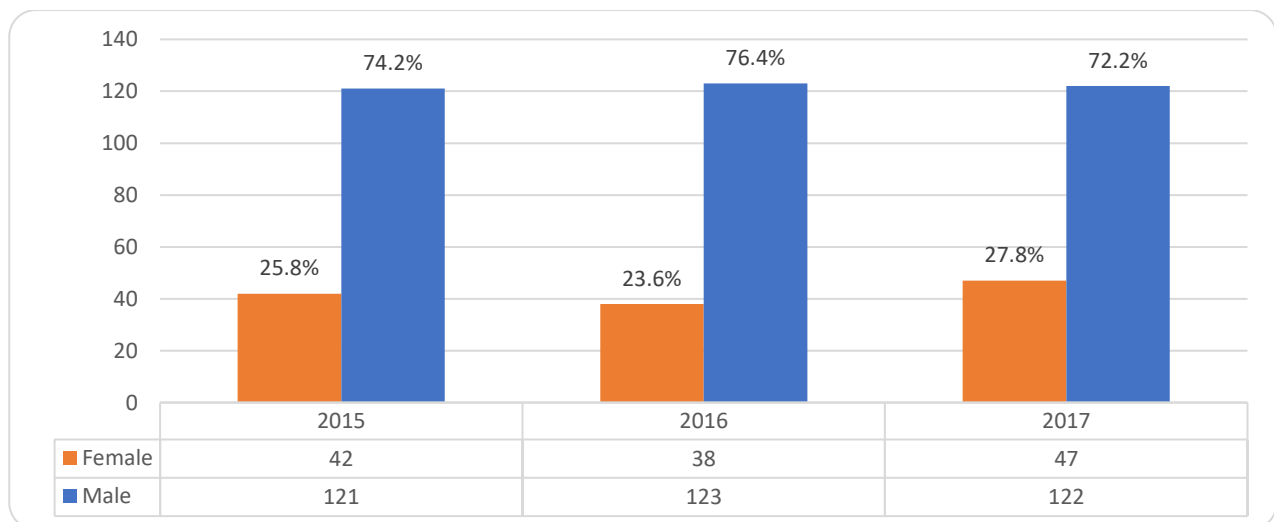


Figure 21: Associate professors by gender, 2015 – 2017

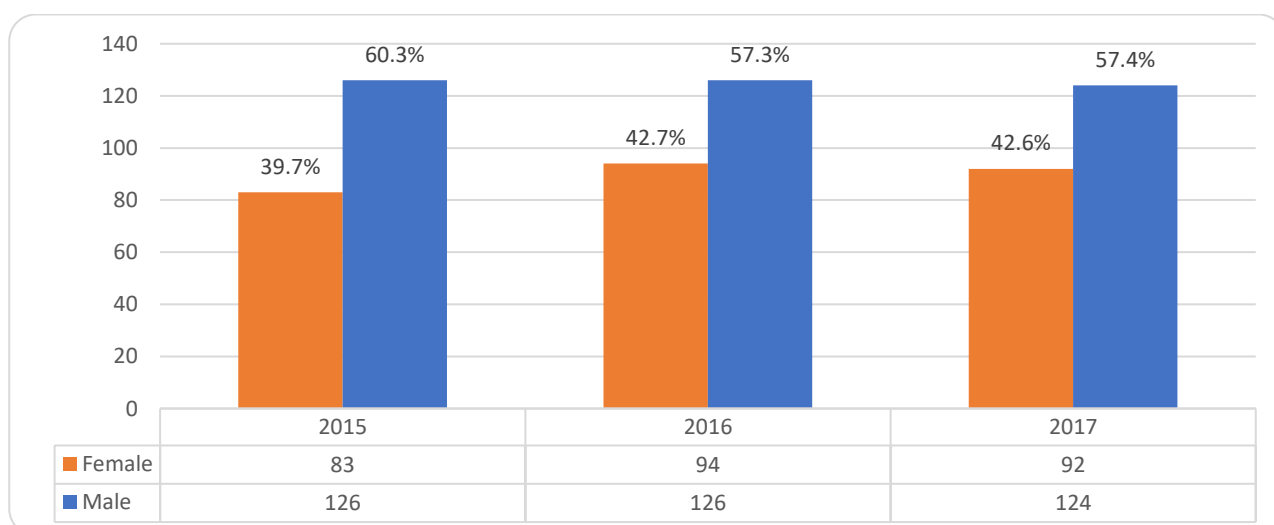


Figure 22: Senior lecturers by gender, 2015 – 2017

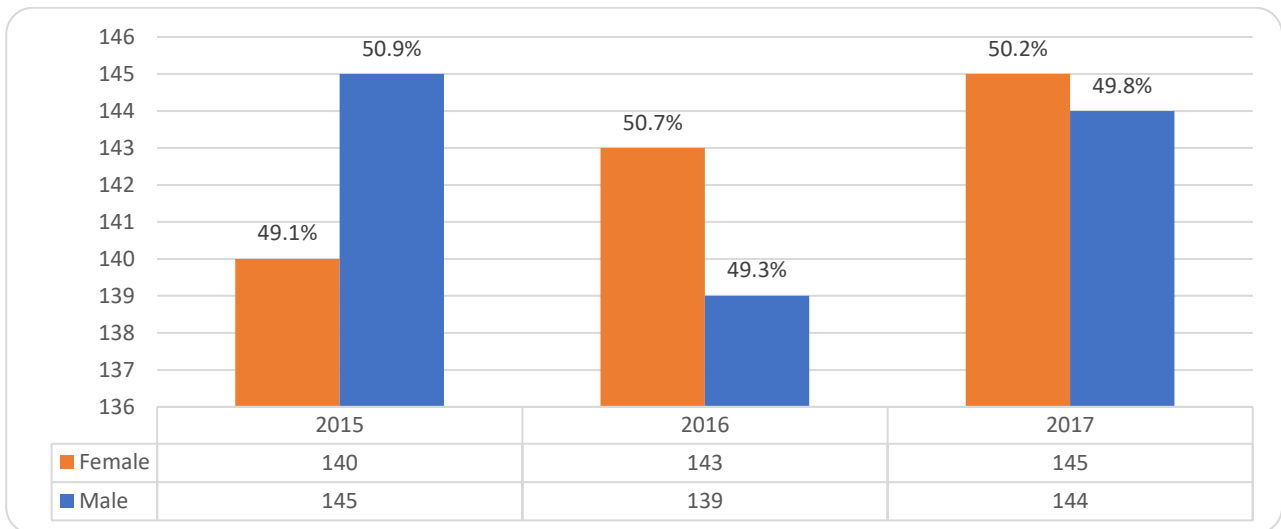


Figure 23: Lecturers & other by gender, 2015 – 2017

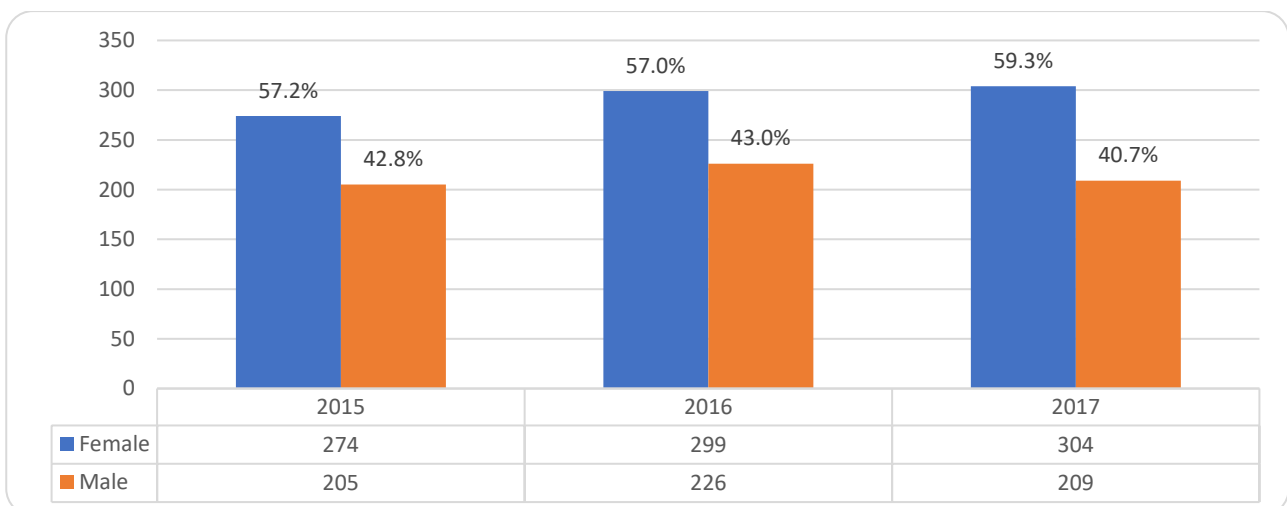


Figure 24: Permanent & part-time/contract support staff as a % of all technical staff, 2015 - 2017

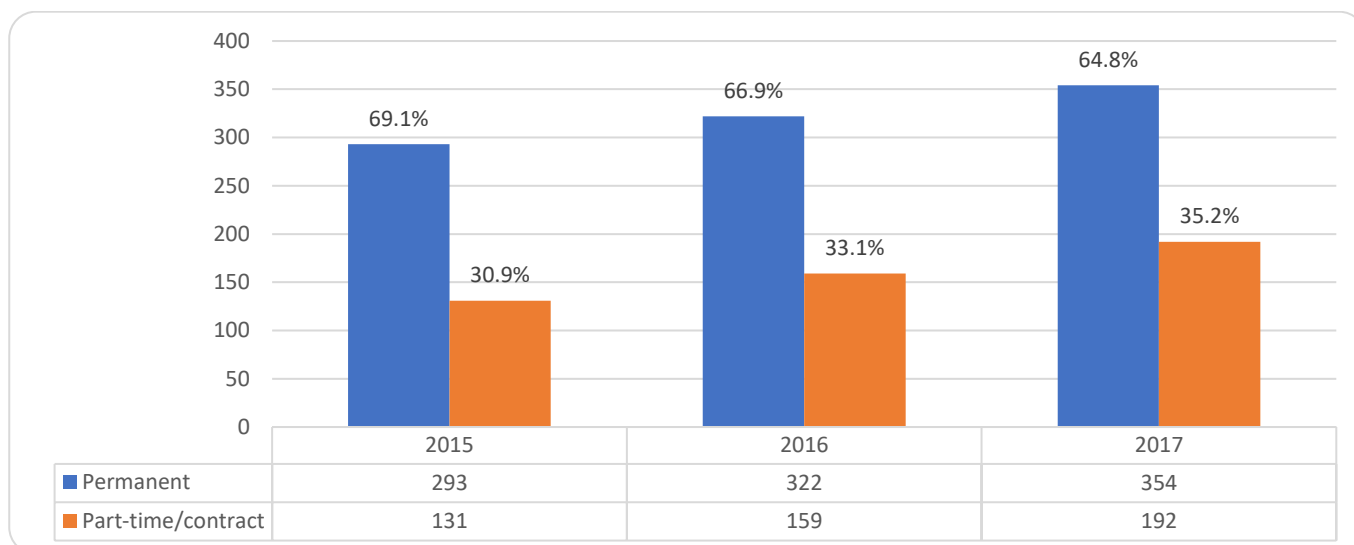


Table 5: Postdoctoral fellows, 2015 - 2017

| | 2015 | 2016 | 2017 |
|----------------------|------|------|------|
| Postdoctoral fellows | 255 | 240 | 234 |

Figure 25: Research income by source, 2015 – 2017 (US\$)

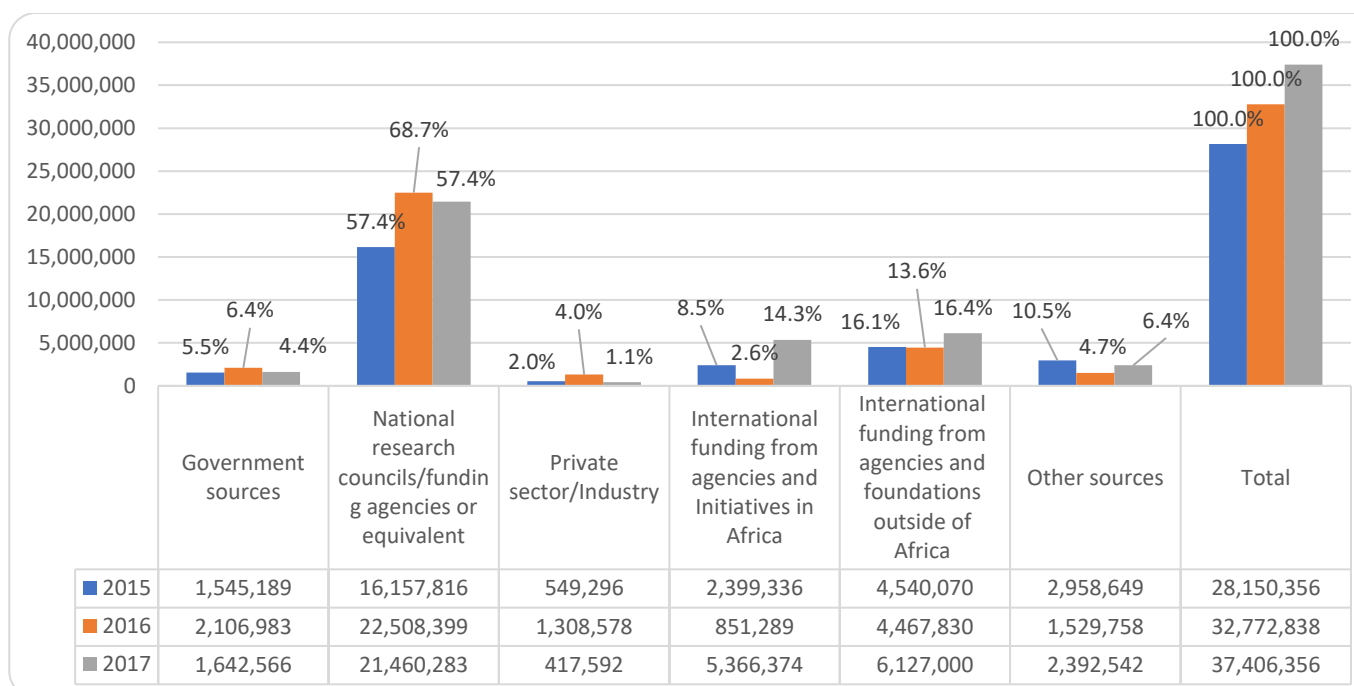


Table 6: Patents, 2015 - 2017

| | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|
| Number of patents registered | 10 | 23 | 32 |

Note: UDSM did not provide 2015 student enrolment data.

Student enrolments

Figure 1: UG vs. PG enrolment, 2016 – 2017

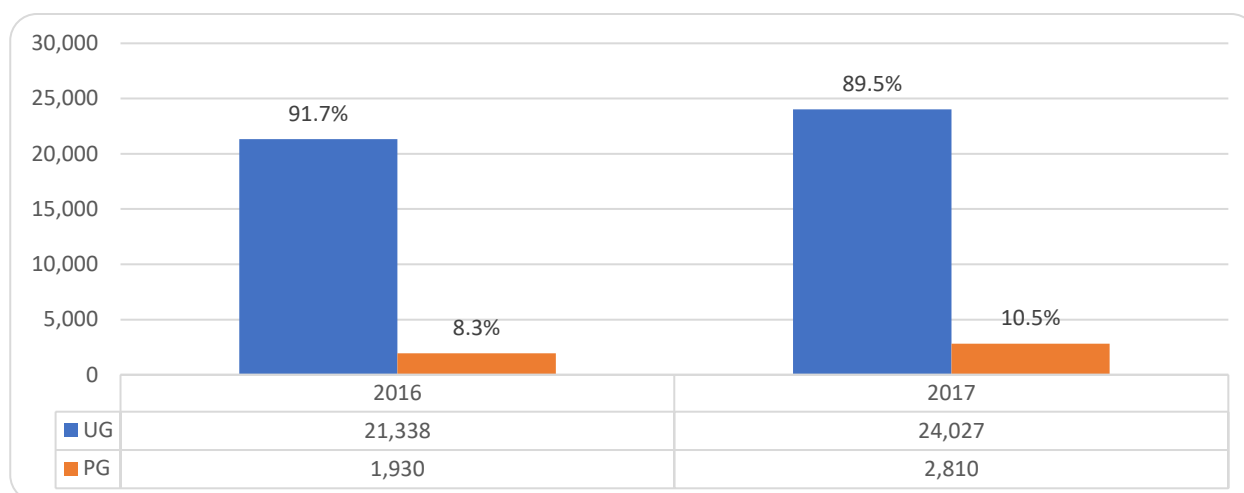
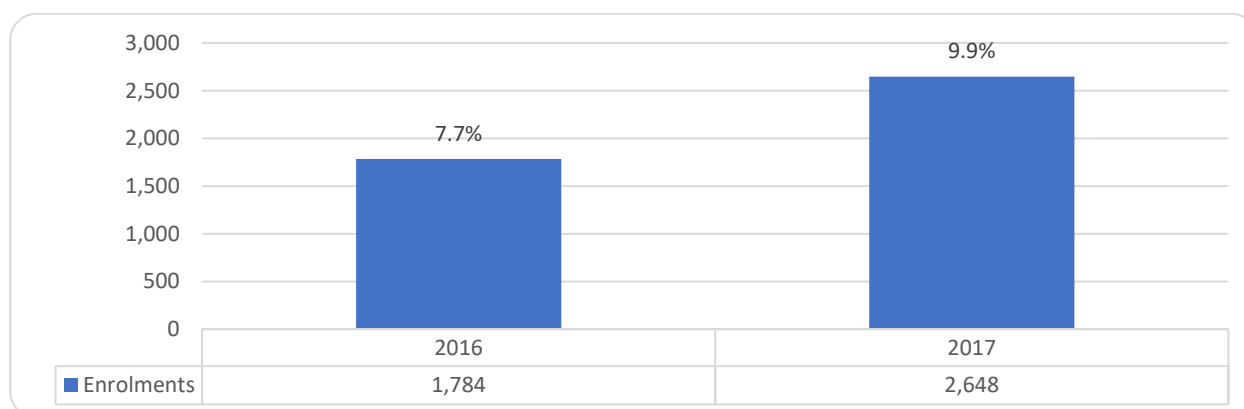


Figure 2: M & D enrolments as a % of total enrolments (UG & PG), 2016 – 2017



Note: UDSM did not provide student enrolment data by study fields.

Figure 3: Postgraduate enrolments by gender, 2015 – 2017

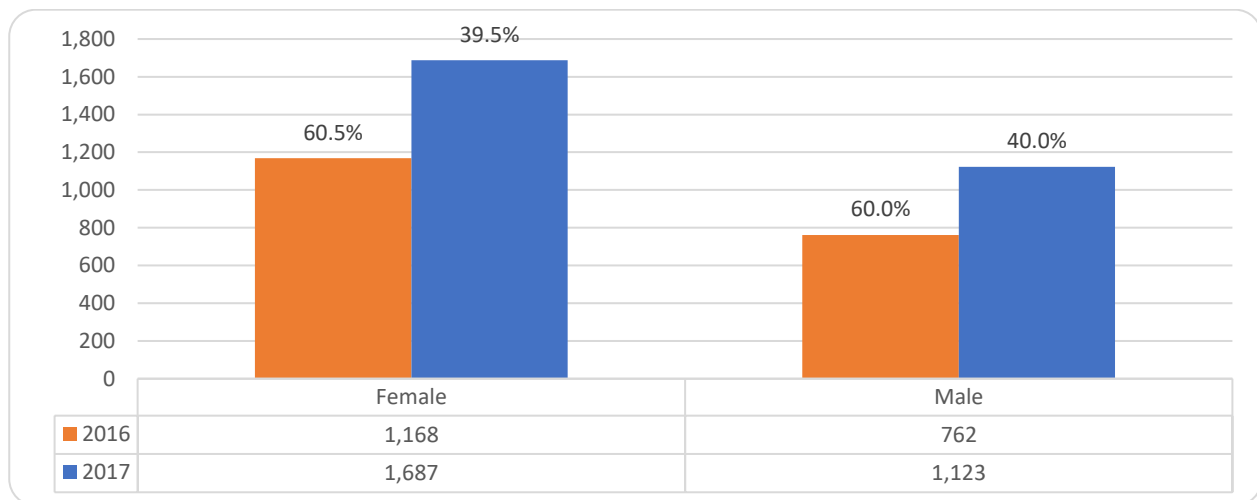


Figure 4: Master's enrolments by gender, 2015 – 2017

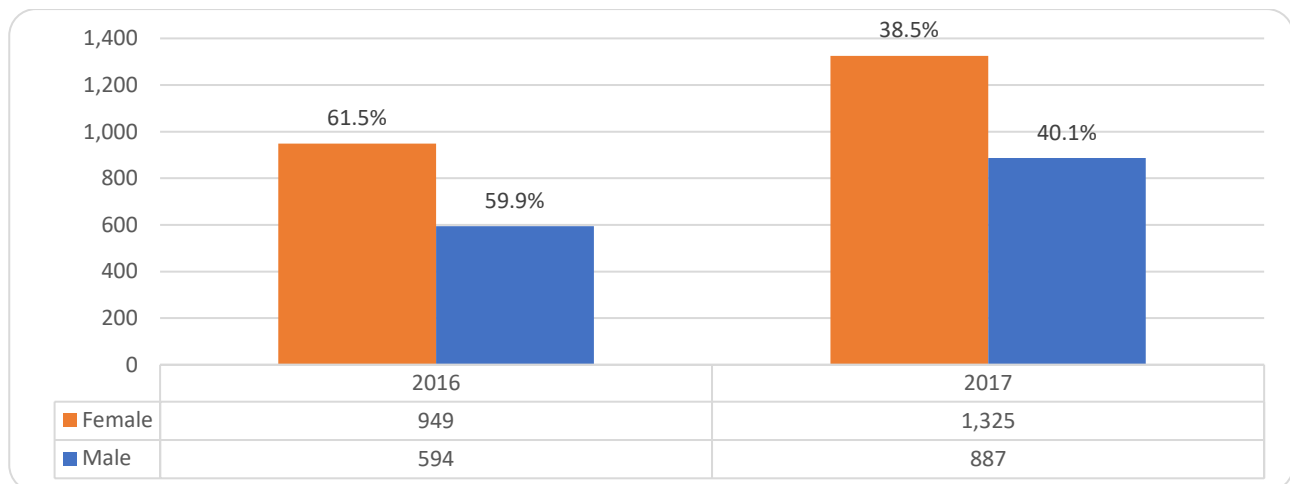
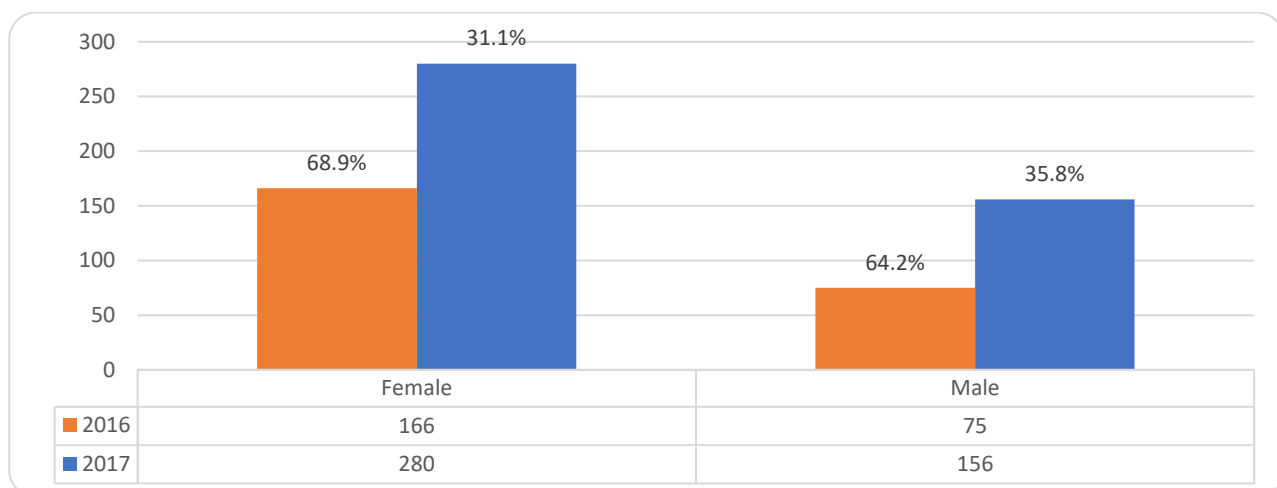


Figure 5: Doctoral enrolments by gender, 2015 – 2017



Graduates

Figure 6: UG vs. PG graduates, 2016 – 2017

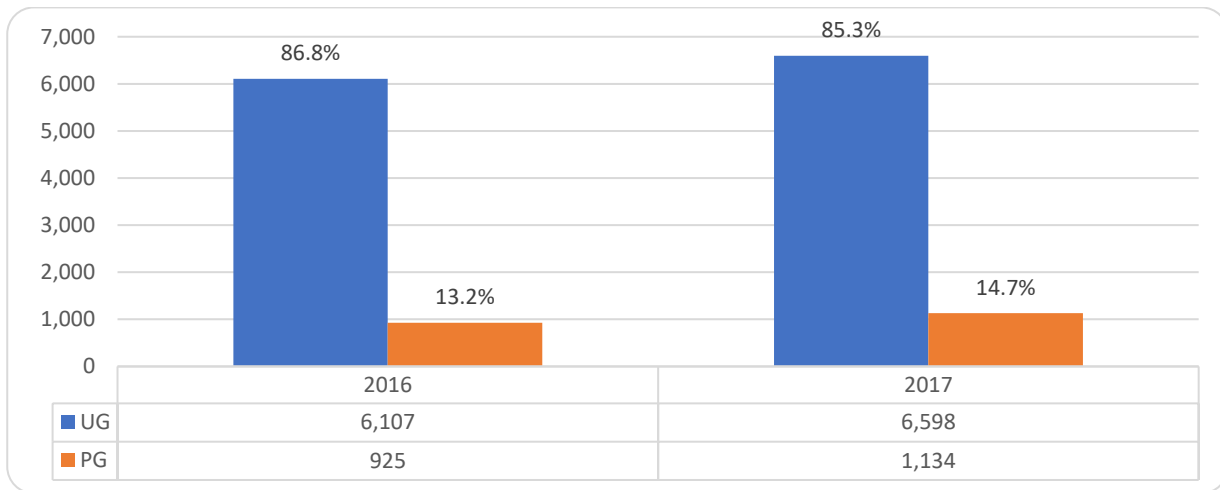


Figure 7: M & D graduates as a % of total graduates (UG & PG), 2016 – 2017

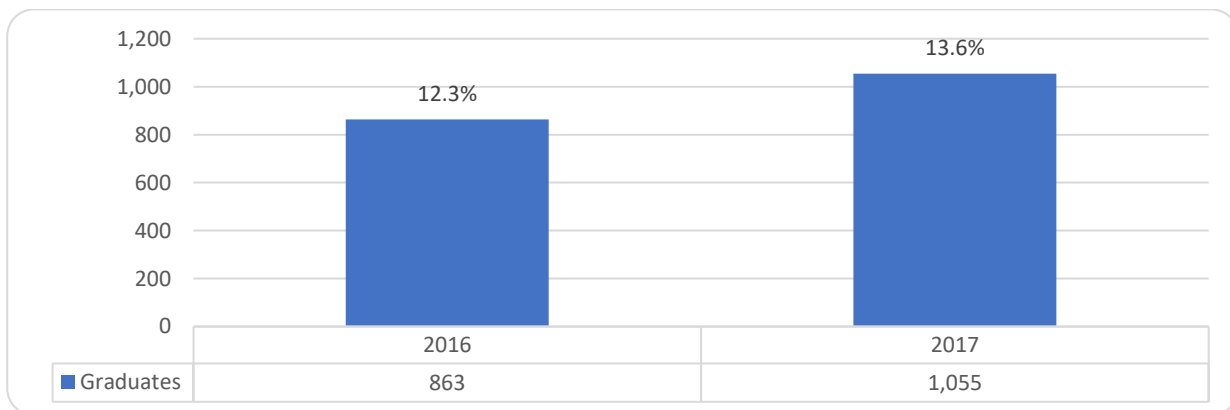


Figure 8: PhD graduates as a % of total graduates (UG & PG), 2016 – 2017

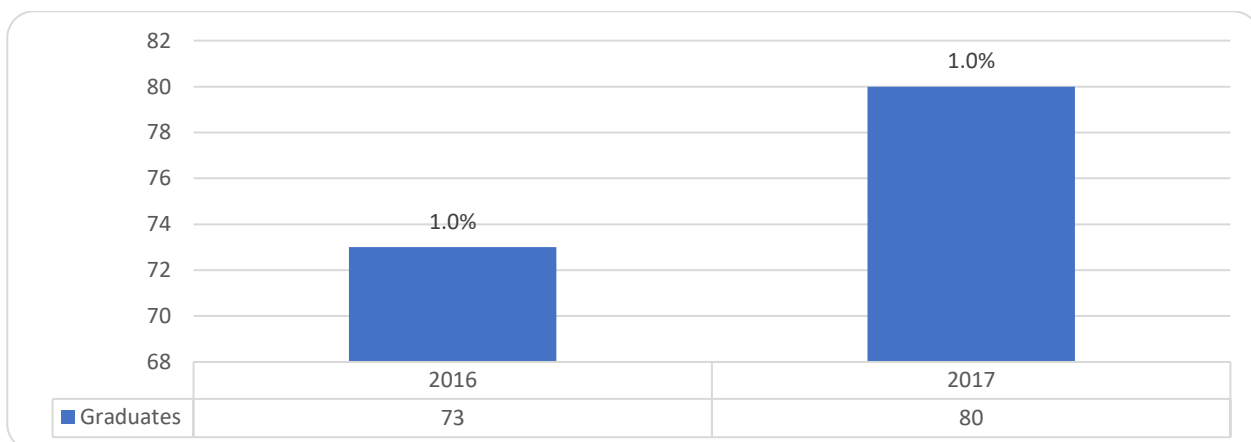


Figure 9: Postgraduate graduates by gender, 2015 – 2017

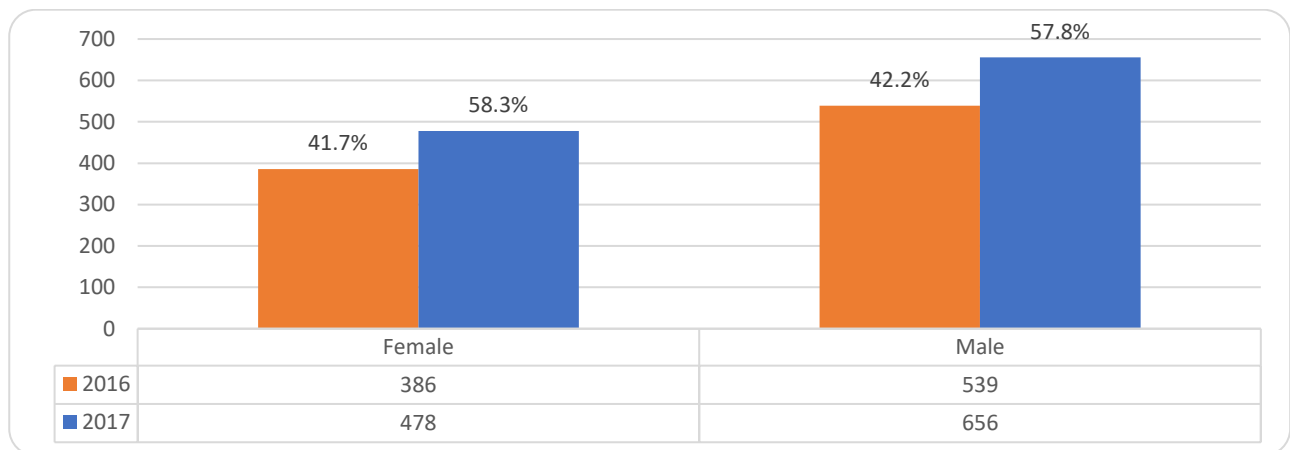


Figure 10: Master's graduates by gender, 2015 – 2017

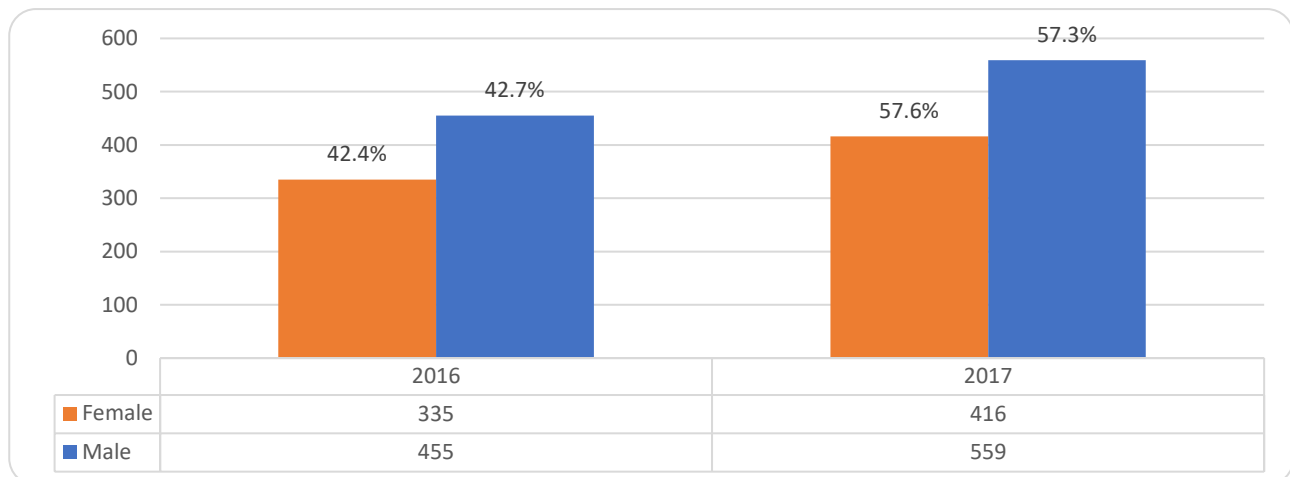


Figure 11: PhD graduates by gender, 2015 – 2017

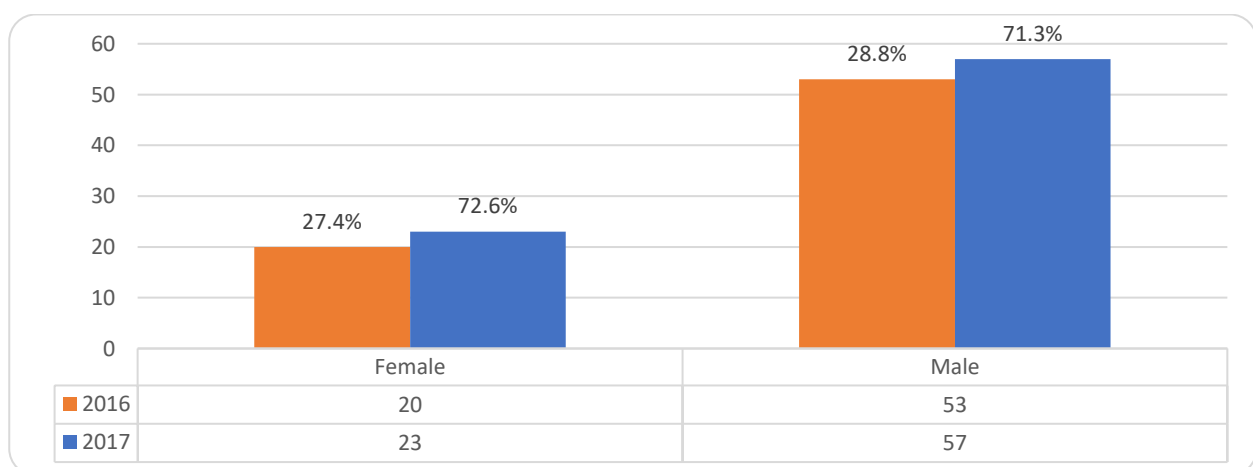
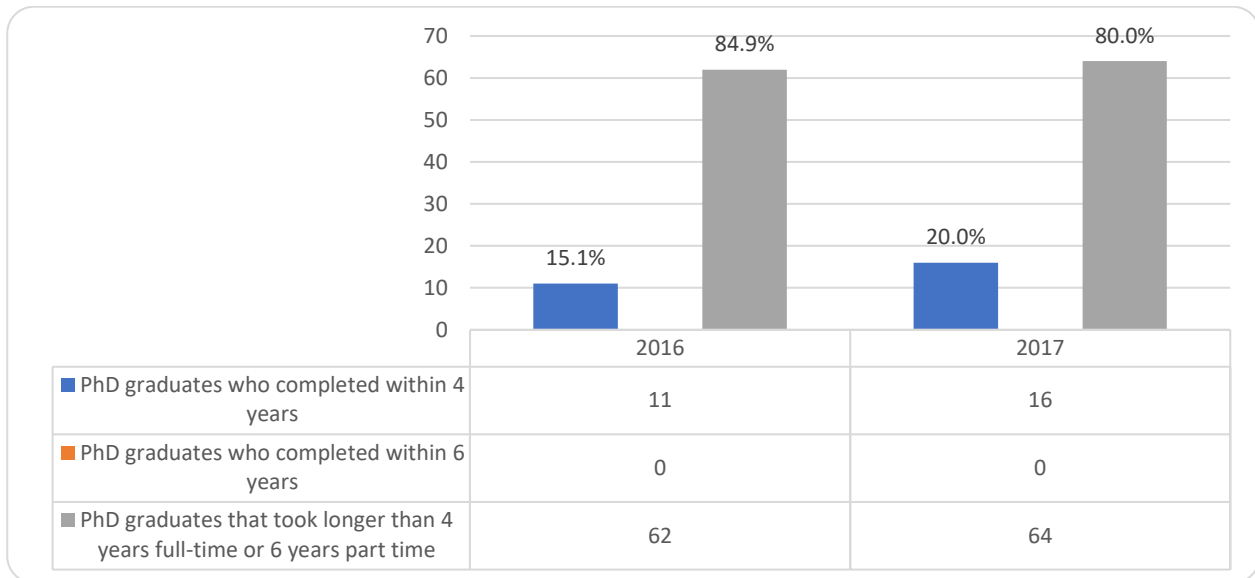


Figure 12: Percentage of PhD graduates by completion time, 2016 – 2017



Staff

UDSM only provided staff by permanent academic staff by rank

Figure 13: Professors as a % of all academic staff, 2015 – 2017

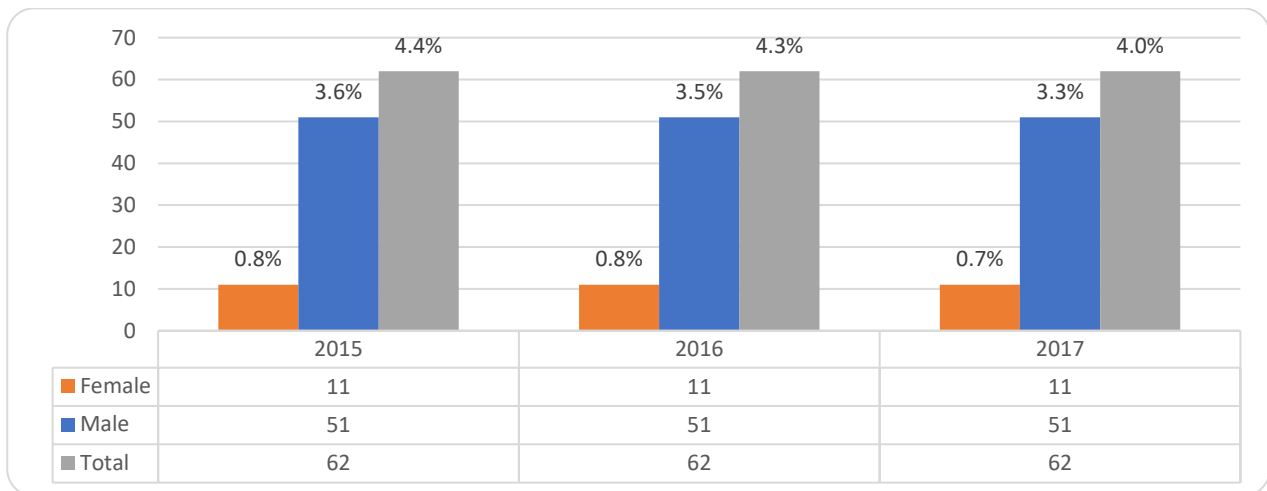


Figure 14: Associate professors as a % of all academic staff, 2015 – 2017

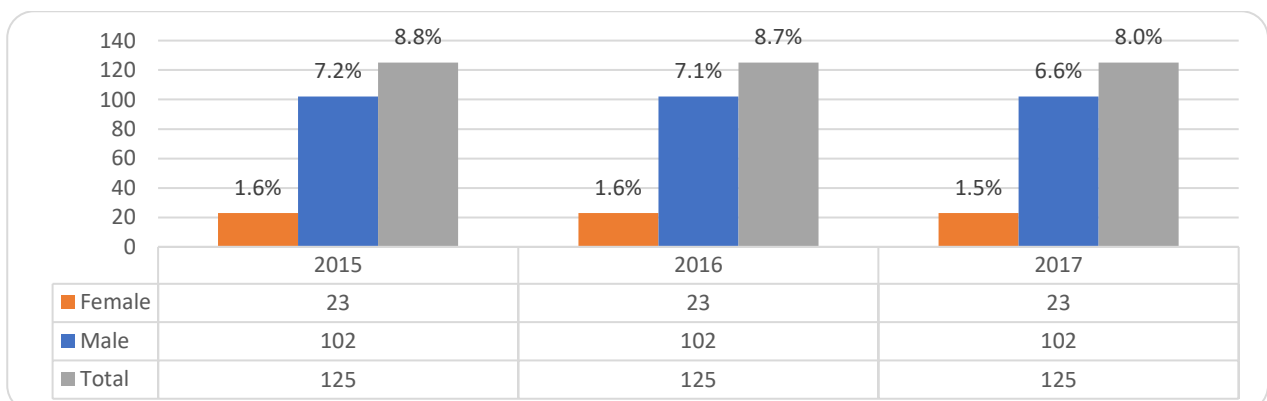


Figure 15: Senior lecturers as a % of all academic staff, 2015 – 2017

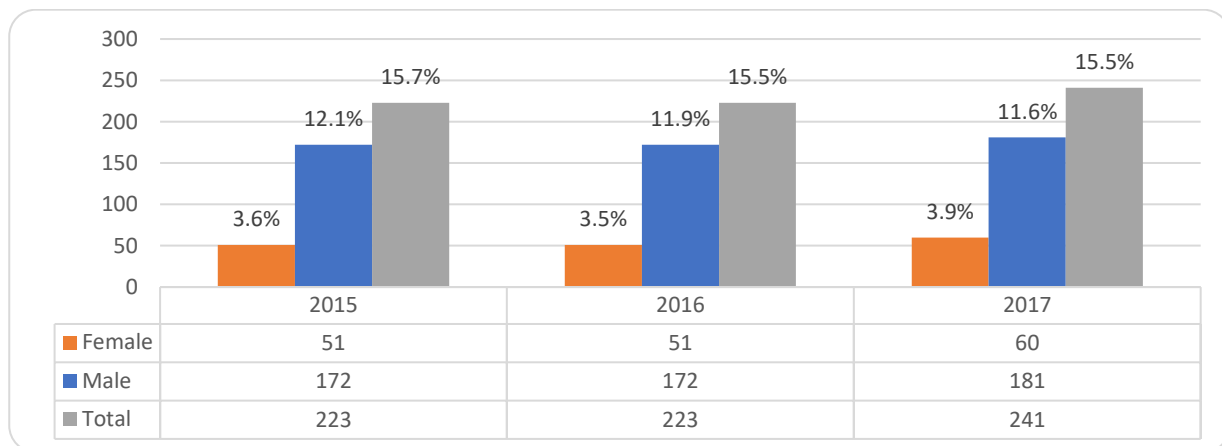


Figure 16: Lecturers and others as a % of all academic staff, 2015 – 2017

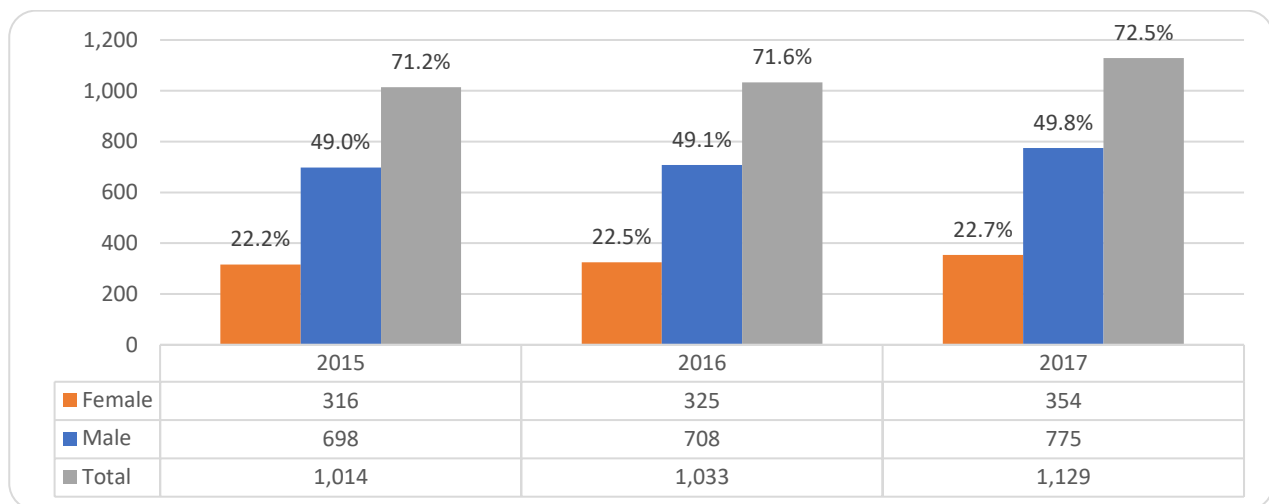


Figure 17: Professors by gender, 2015 – 2017

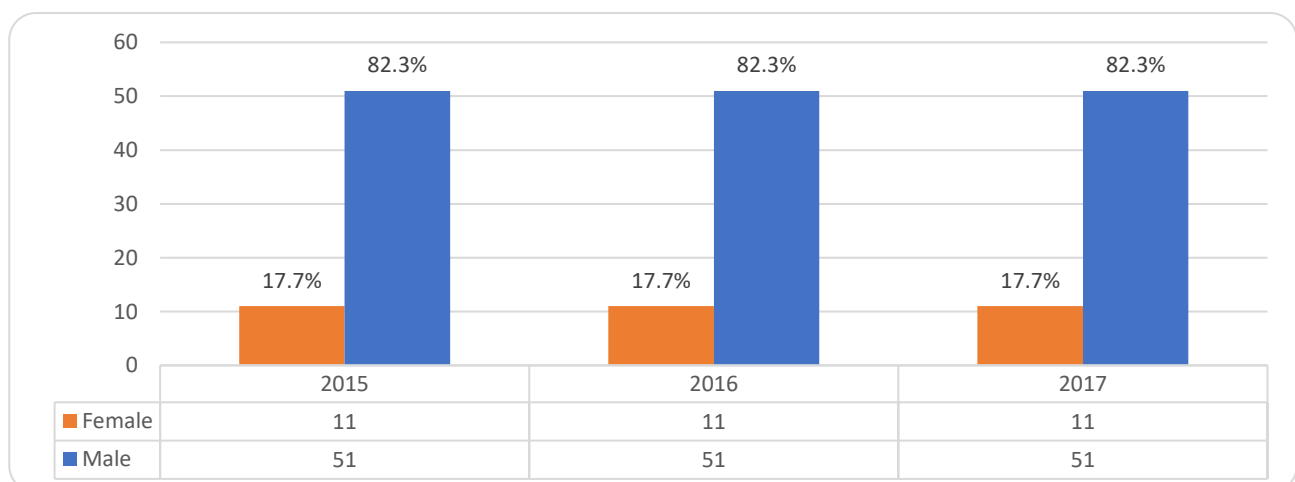


Figure 18: Associate Professors by gender, 2015 – 2017

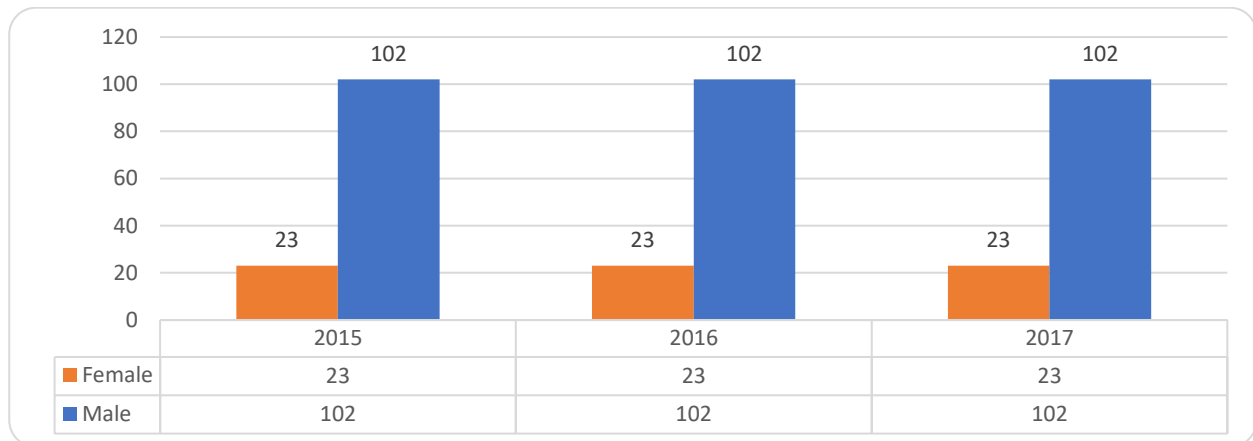


Figure 19: Senior Lecturers by gender, 2015 – 2017

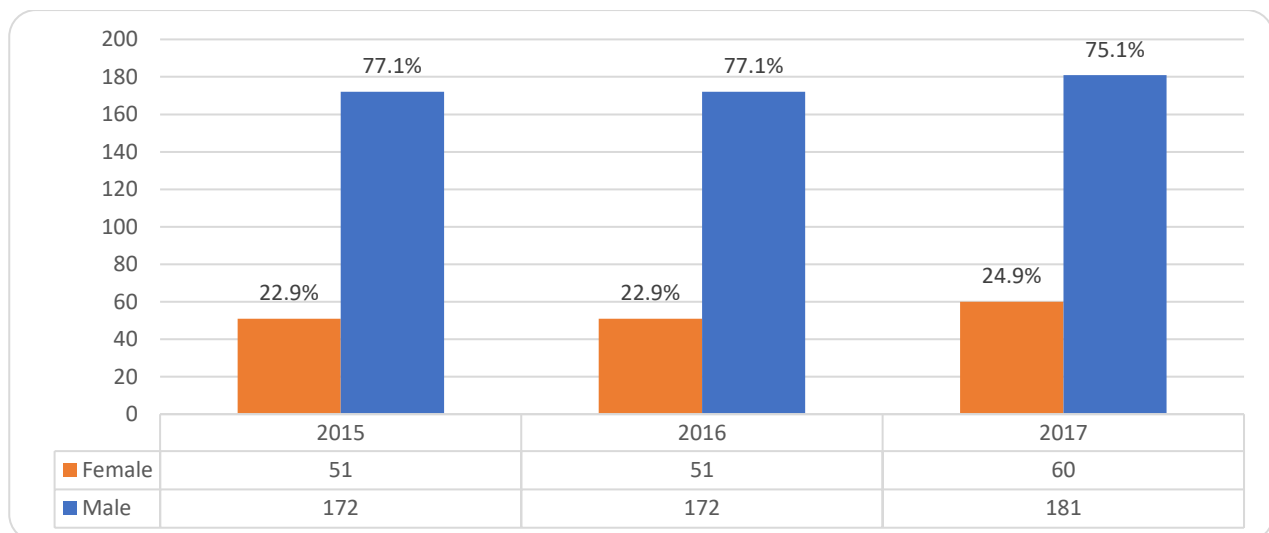


Figure 20: Lecturers or other by gender, 2015 – 2017

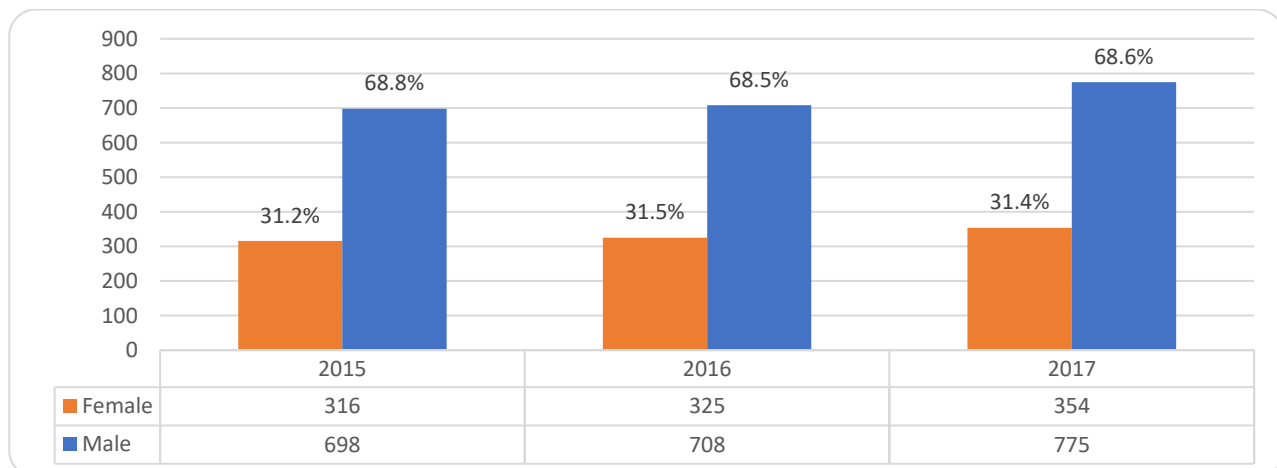
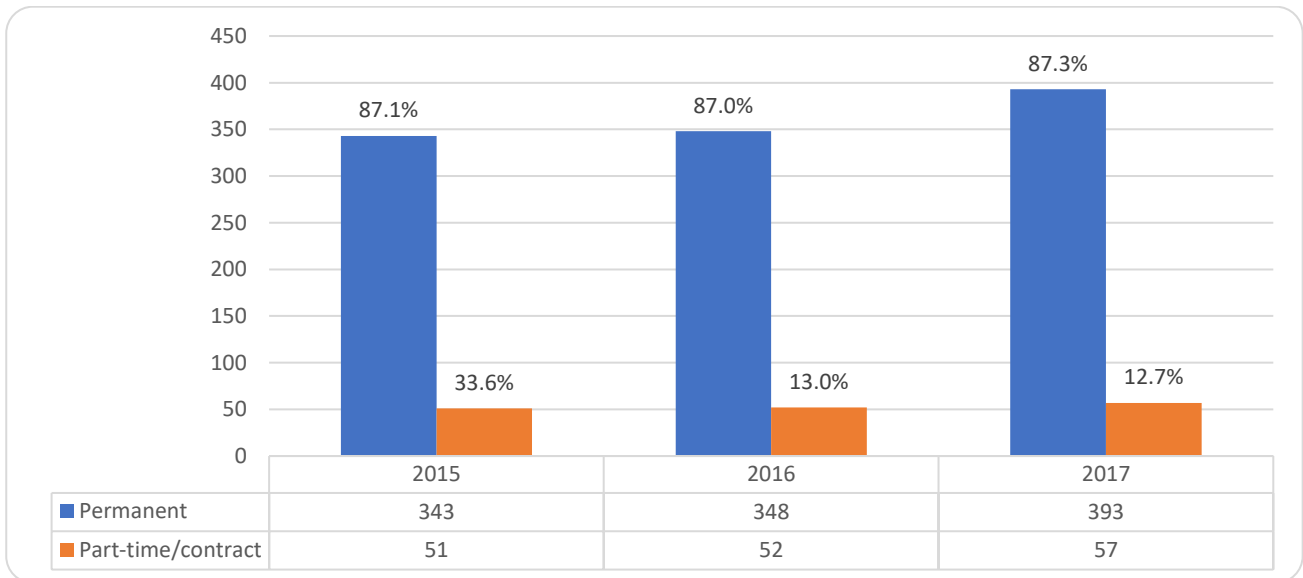


Figure 21: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017



Note: UDSM did not provide data on postdoctoral fellows, research income and patents.

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Figure 1: UG vs. PG enrolment, 2015 – 2017

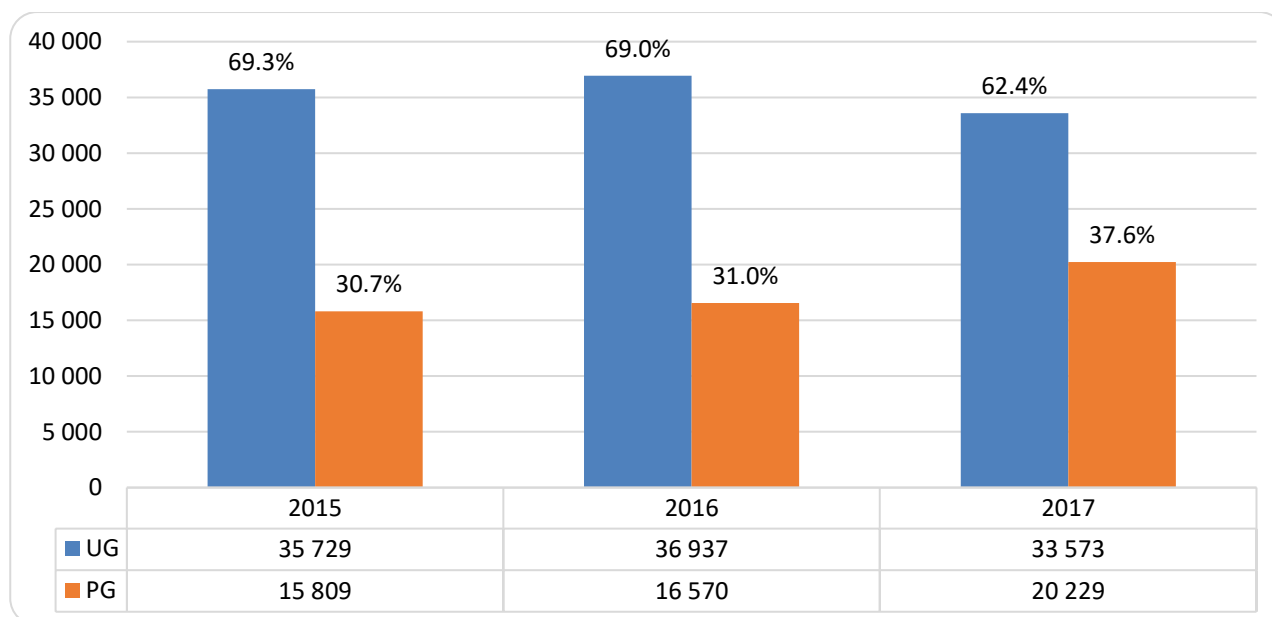


Table 1: Percentage of UG and PG enrolment by study field, 2015 – 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|---|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural Sciences | 9.2% | 4.3% | 13.5% | 8.6% | 4.8% | 13.4% | 7.1% | 4.8% | 11.9% |
| Engineering and Technology | 18.1% | 4.5% | 22.6% | 17.0% | 4.5% | 21.5% | 14.7% | 5.2% | 19.9% |
| Medical and Health Sciences | 9.9% | 2.9% | 12.8% | 12.4% | 1.8% | 14.2% | 11.5% | 3.5% | 15.0% |
| Agricultural Sciences | 3.8% | 1.3% | 5.1% | 2.8% | 1.4% | 4.2% | 1.5% | 1.9% | 3.4% |
| Social Sciences | 7.7% | 7.7% | 15.4% | 6.7% | 7.6% | 14.3% | 7.5% | 9.4% | 16.9% |
| Humanities | 6.8% | 4.5% | 11.3% | 7.0% | 4.4% | 11.4% | 6.7% | 4.7% | 11.4% |
| Business Economics and Management Studies | 13.8% | 5.4% | 19.2% | 14.5% | 6.5% | 21.0% | 13.4% | 8.1% | 21.5% |
| Total | 69.3% | 30.7% | 100.0% | 69.0% | 31.0% | 100.0% | 62.4% | 37.6% | 100.0% |

Figure 2: M & D enrolments, 2015 – 2017

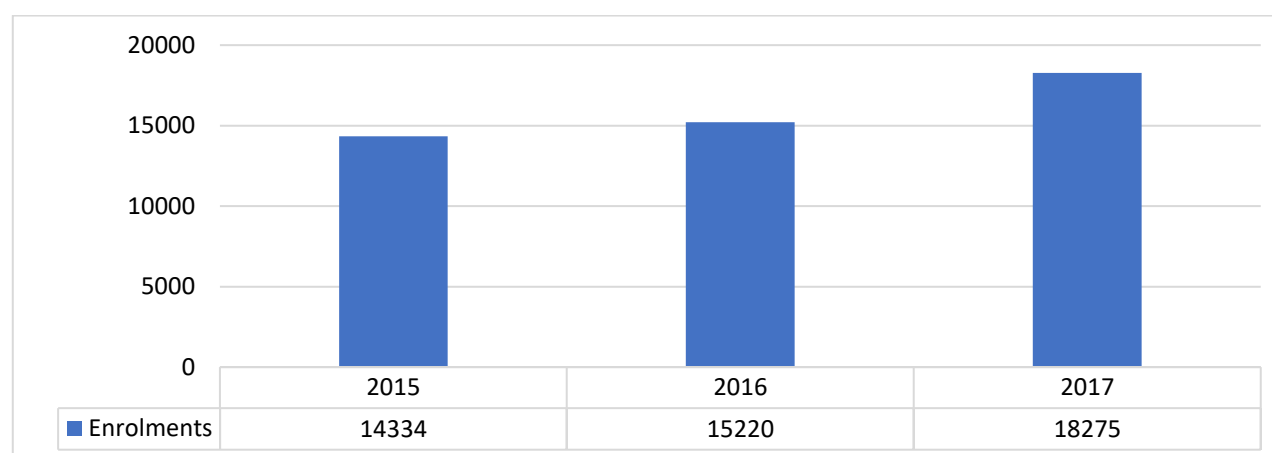


Table 2: M & D enrolments per study field as a % of total enrolments (UG & PG), 2015 - 2017

| Broad field of study | 2015 | 2016 | 2017 |
|---|--------------|--------------|--------------|
| Natural Sciences | 4.3% | 4.8% | 4.8% |
| Engineering and Technology | 4.8% | 4.8% | 5.5% |
| Medical and Health Sciences | 3.7% | 2.6% | 4.8% |
| Agricultural Sciences | 0.3% | 0.3% | 0.3% |
| Social Sciences | 6.0% | 6.0% | 6.8% |
| Humanities | 3.9% | 4.0% | 4.1% |
| Business Economics and Management Studies | 4.7% | 6.0% | 7.7% |
| Total | 27.8% | 28.4% | 34.0% |

Figure 3: Postgraduate enrolments (including PG below master's) by gender, 2015 – 2017

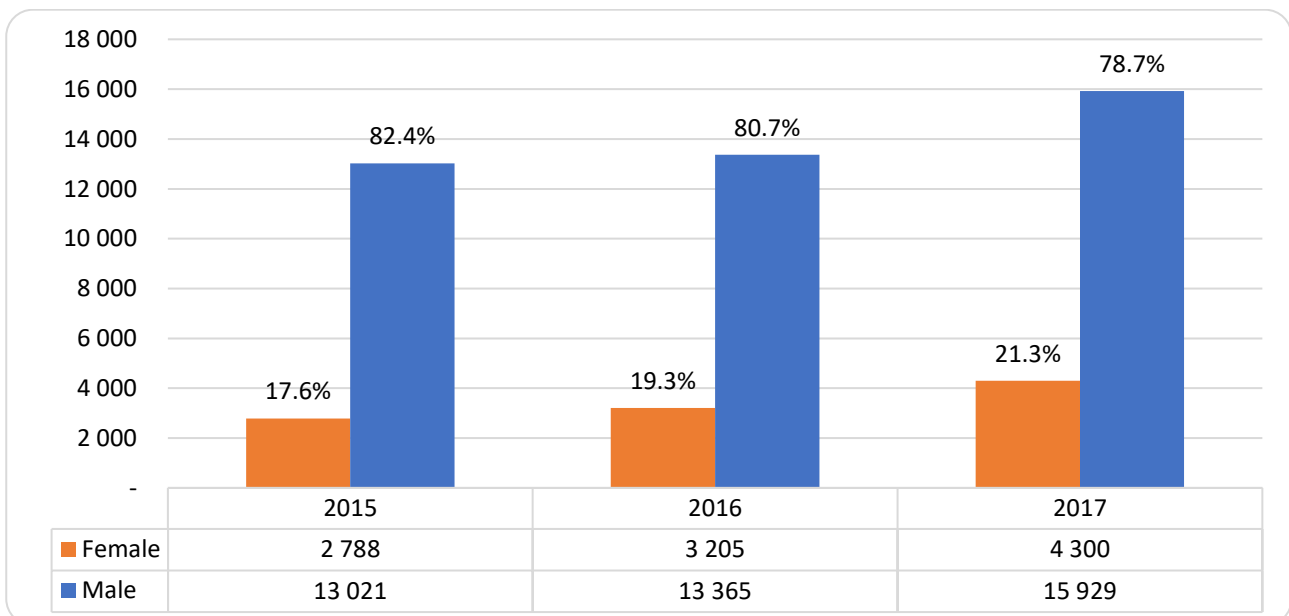


Figure 4: Master's enrolments by gender, 2015 – 2017

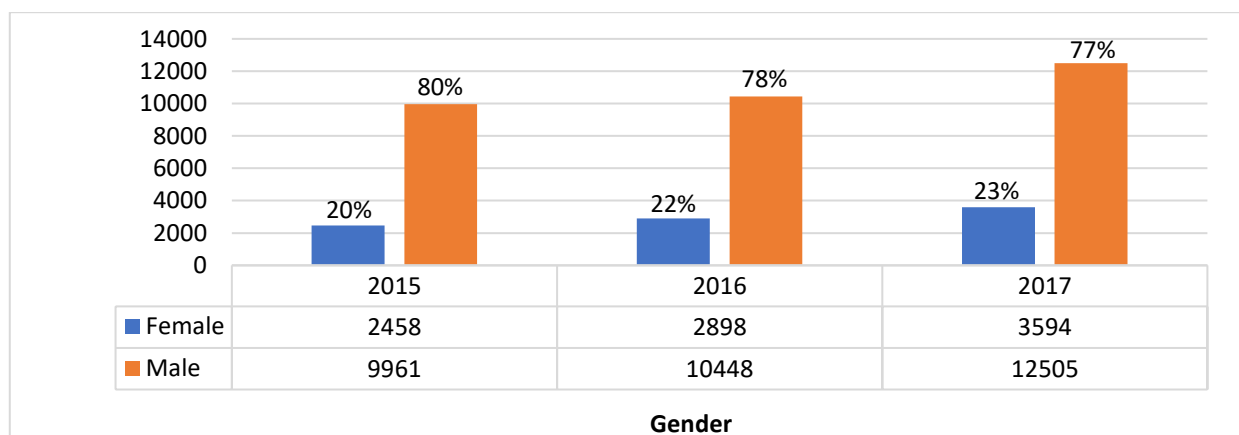


Figure 5: Doctoral enrolments by gender, 2015 – 2017

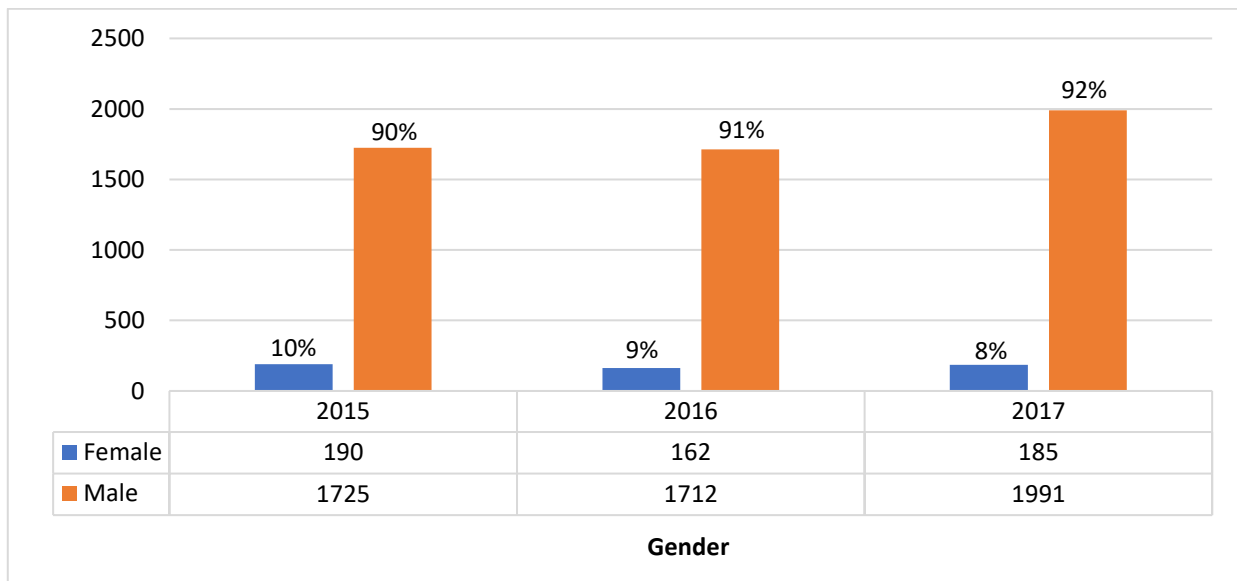
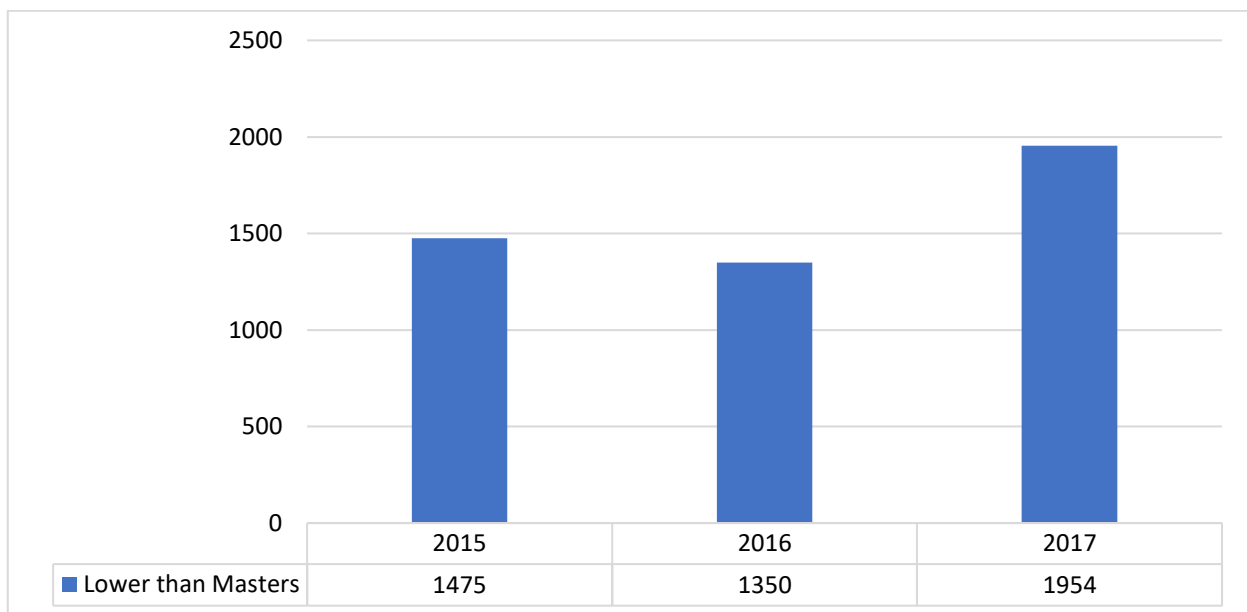


Figure 6: PG enrolments at lower than Master's level, 2015 – 2017

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Graduates

Figure 7: UG and PG graduates as a % of total graduates, 2015 – 2017

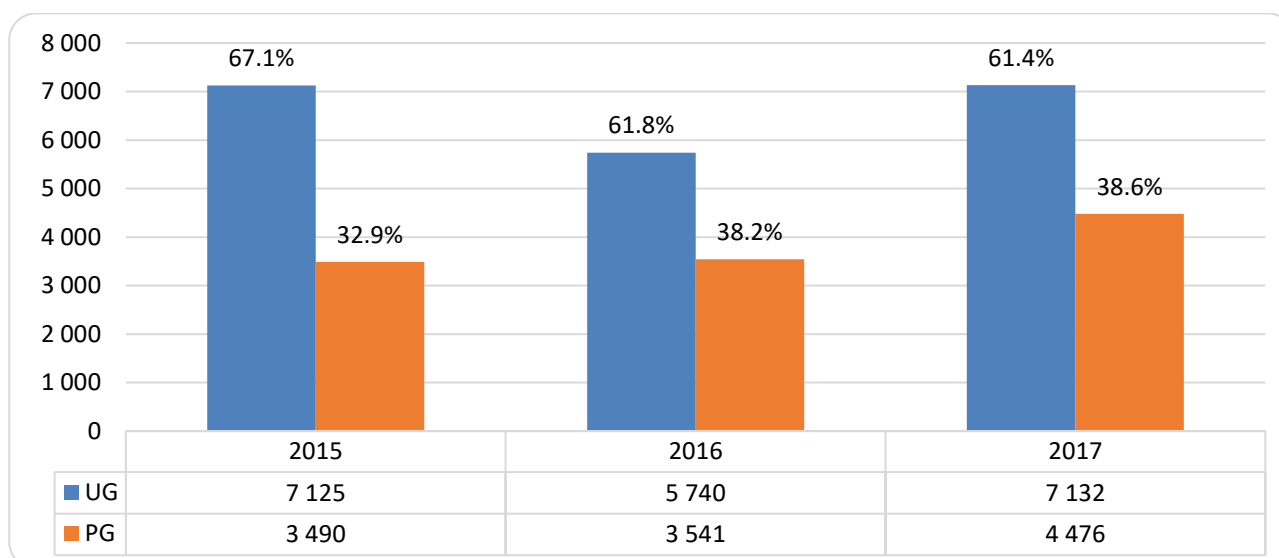


Table 3: UG vs. PG graduates by study field, 2015 - 2017

| Broad field of study | 2015 | | | 2016 | | | 2017 | | |
|---|--------------|--------------|---------------|--------------|--------------|---------------|--------------|--------------|---------------|
| | UG | PG | Total | UG | PG | Total | UG | PG | Total |
| Natural Sciences | 10.4% | 3.9% | 14.3% | 6.6% | 3.8% | 10.4% | 6.6% | 3.8% | 10.4% |
| Engineering and Technology | 18.2% | 4.2% | 22.4% | 20.4% | 6.4% | 26.8% | 18.8% | 4.6% | 23.4% |
| Medical and Health Sciences | 6.7% | 4.7% | 11.4% | 6.5% | 5.1% | 11.6% | 6.4% | 4.6% | 11.0% |
| Agricultural Sciences | 2.4% | 0.5% | 2.9% | 1.9% | 0.4% | 2.3% | 1.7% | 0.6% | 2.3% |
| Social Sciences | 9.0% | 9.1% | 18.1% | 8.1% | 9.4% | 17.5% | 7.0% | 13.2% | 20.2% |
| Humanities | 7.5% | 4.2% | 11.7% | 5.4% | 5.0% | 10.4% | 5.8% | 4.0% | 9.8% |
| Business Economics and Management Studies | 12.9% | 6.3% | 19.2% | 13.0% | 8.0% | 21.0% | 15.2% | 7.7% | 22.9% |
| Total | 67.1% | 32.9% | 100.0% | 61.8% | 38.2% | 100.0% | 61.4% | 38.6% | 100.0% |

Figure 8: M & D graduates as a % of total graduates (UG & PG), 2015 – 2017

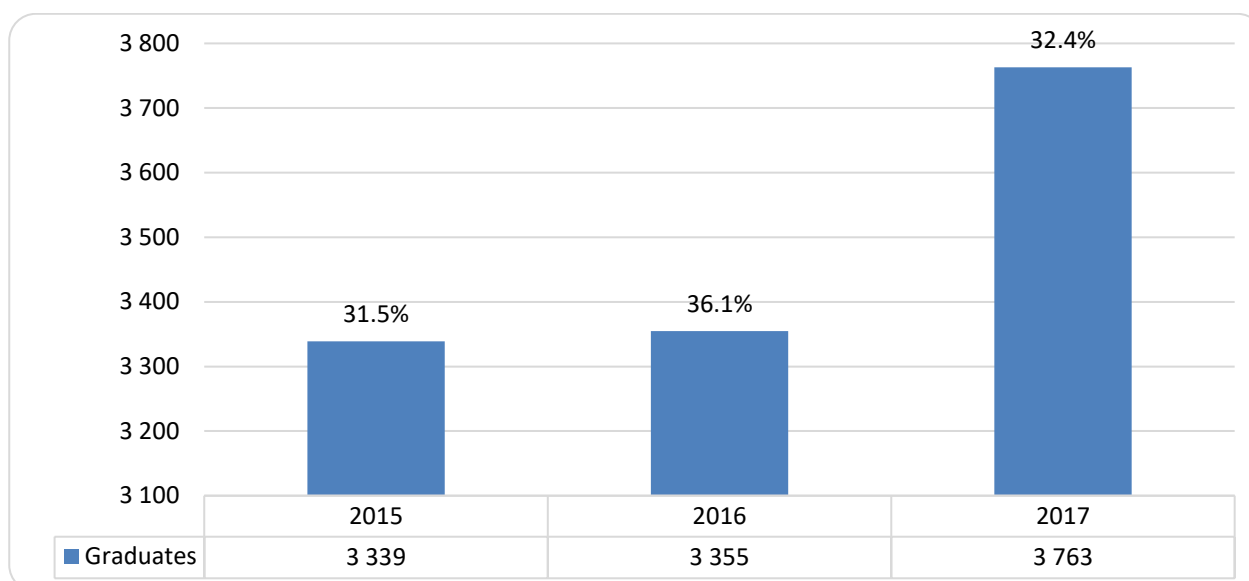


Table 4: M & D graduates per study field as a % of total graduates (UG and PG), 2015 – 2017

| Broad field of study | 2015 | 2016 | 2017 |
|---|-------|-------|-------|
| Natural Sciences | 3.9% | 3.8% | 3.8% |
| Engineering and Technology | 4.2% | 6.4% | 4.6% |
| Medical and Health Sciences | 4.7% | 5.1% | 4.6% |
| Agricultural Sciences | 0.5% | 0.4% | 0.6% |
| Social Sciences | 7.7% | 7.4% | 7.1% |
| Humanities | 4.2% | 5.1% | 4.0% |
| Business Economics and Management Studies | 6.3% | 7.9% | 7.7% |
| Total | 31.5% | 36.1% | 32.4% |

Figure 9: PhD graduates as a % of total graduates (UG and PG), 2015 – 2017

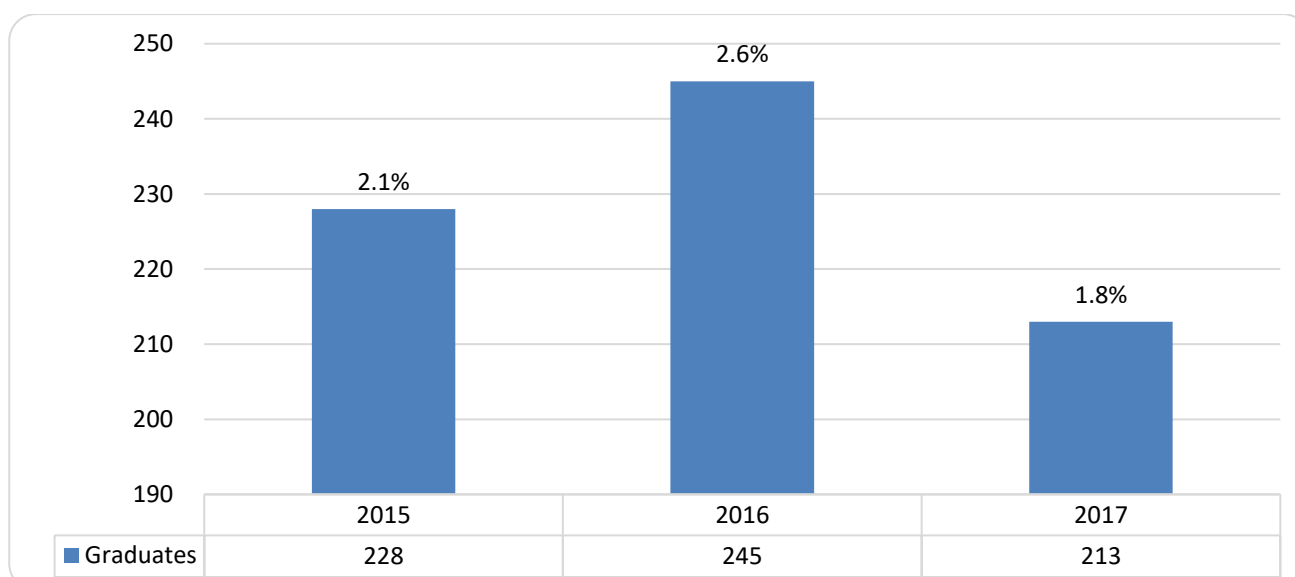


Figure 10: Postgraduate graduates by gender, 2015 – 2017

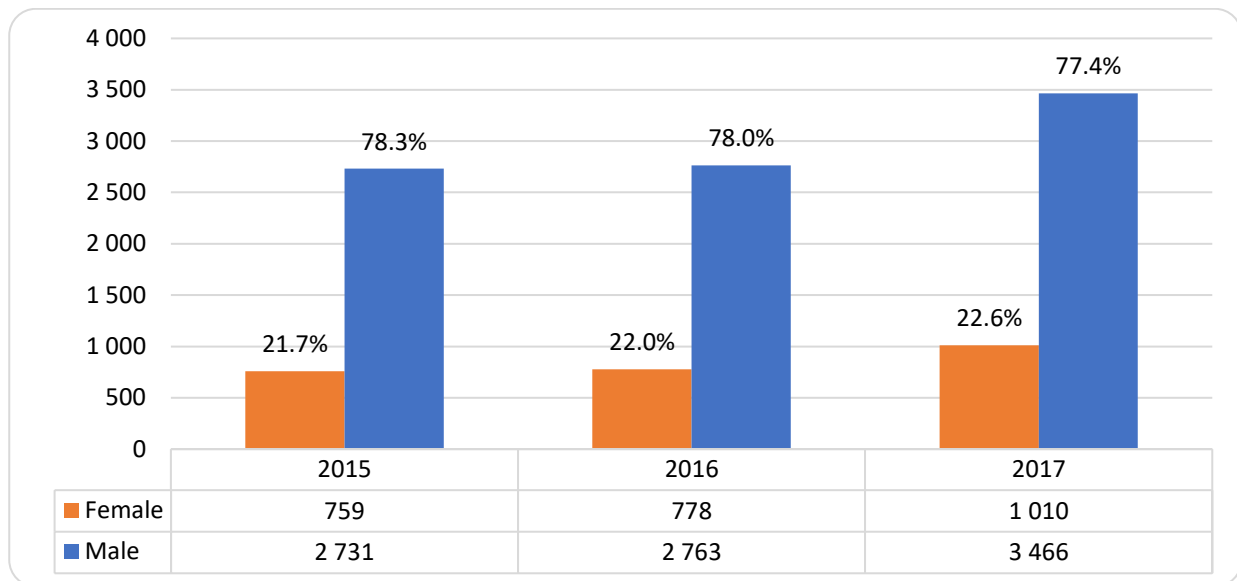


Figure 11: Master's graduates by gender, 2015 – 2017

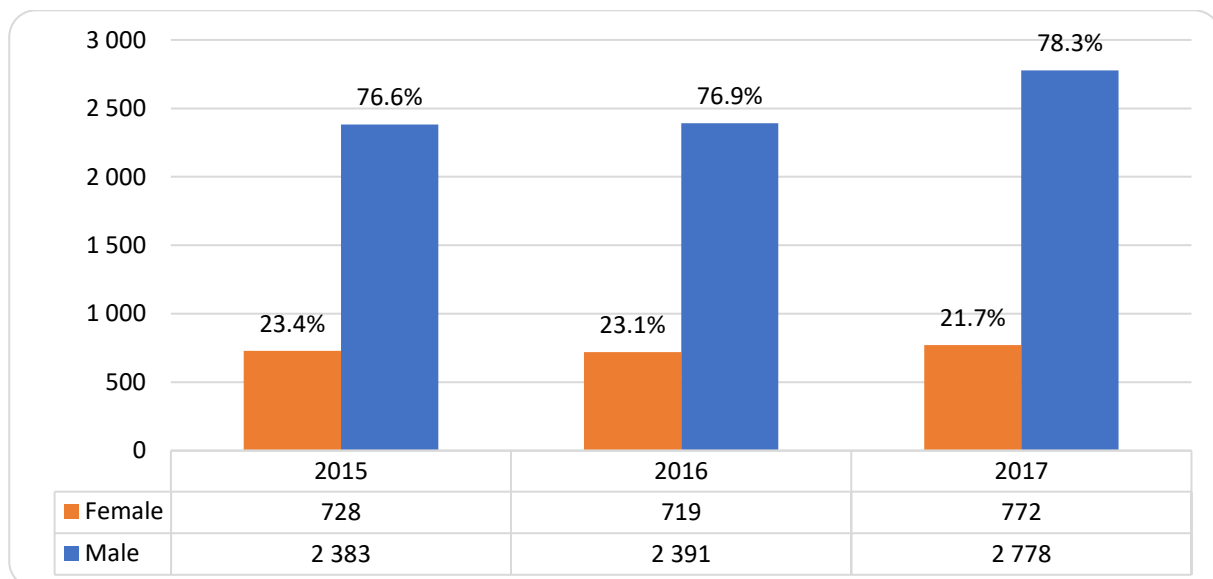


Figure 12: Doctoral graduates by gender, 2015 – 2017

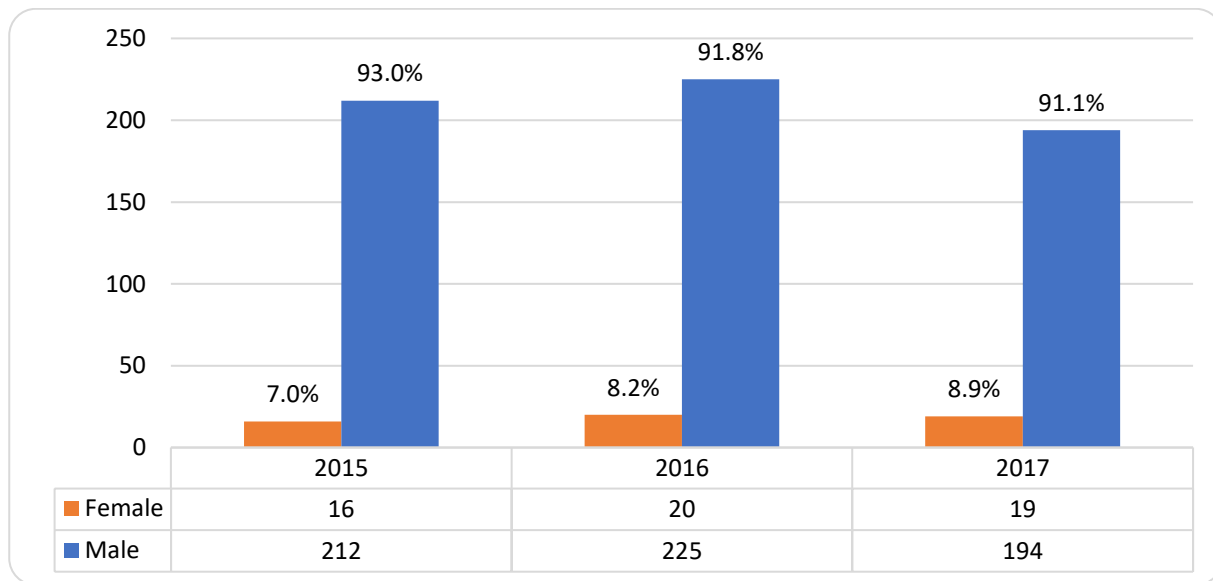
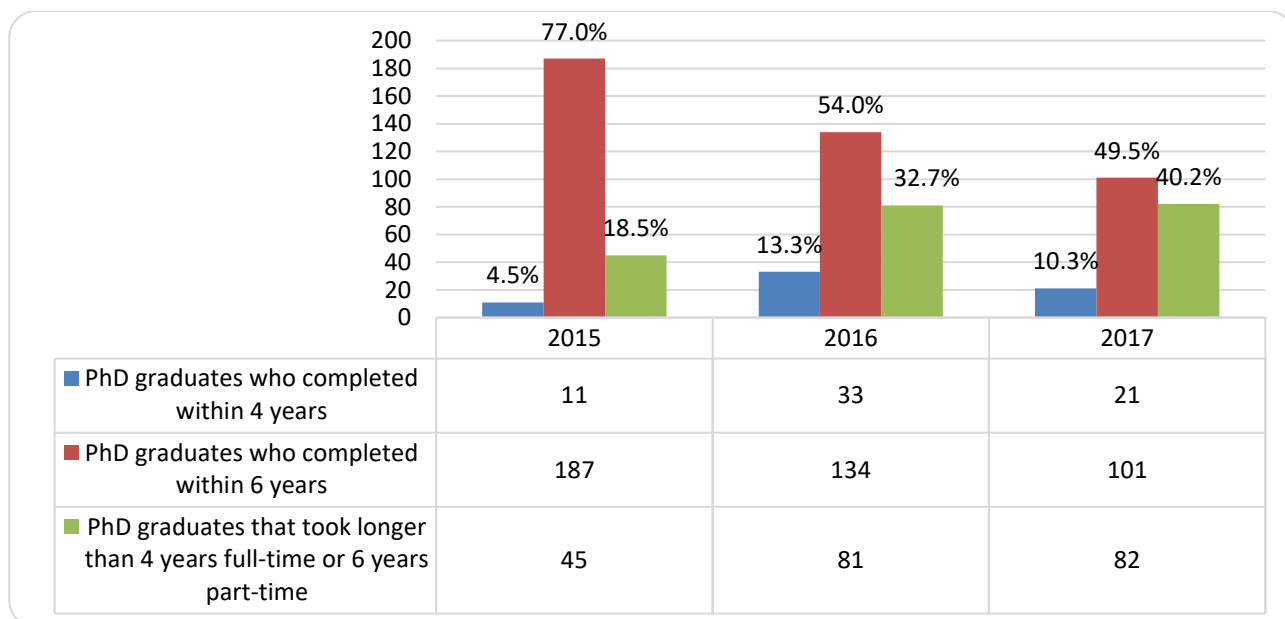


Figure 13: Percentage of PhD graduates by completion time, 2015 – 2017



Staff

Figure 14: Permanent academic staff with PhD as a % of all permanent academic staff, 2015 – 2017

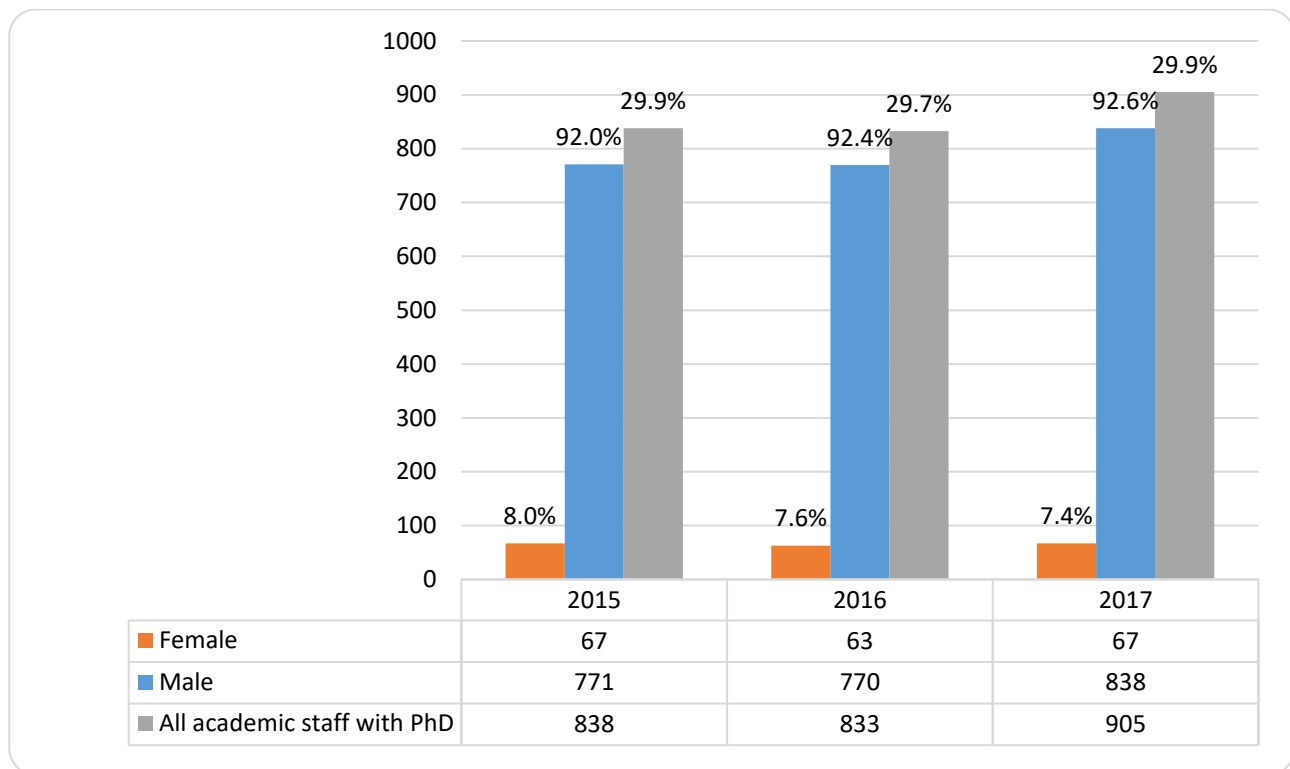


Figure 15: Permanent & part-time/contract support staff as a % of all technical staff, 2015 – 2017

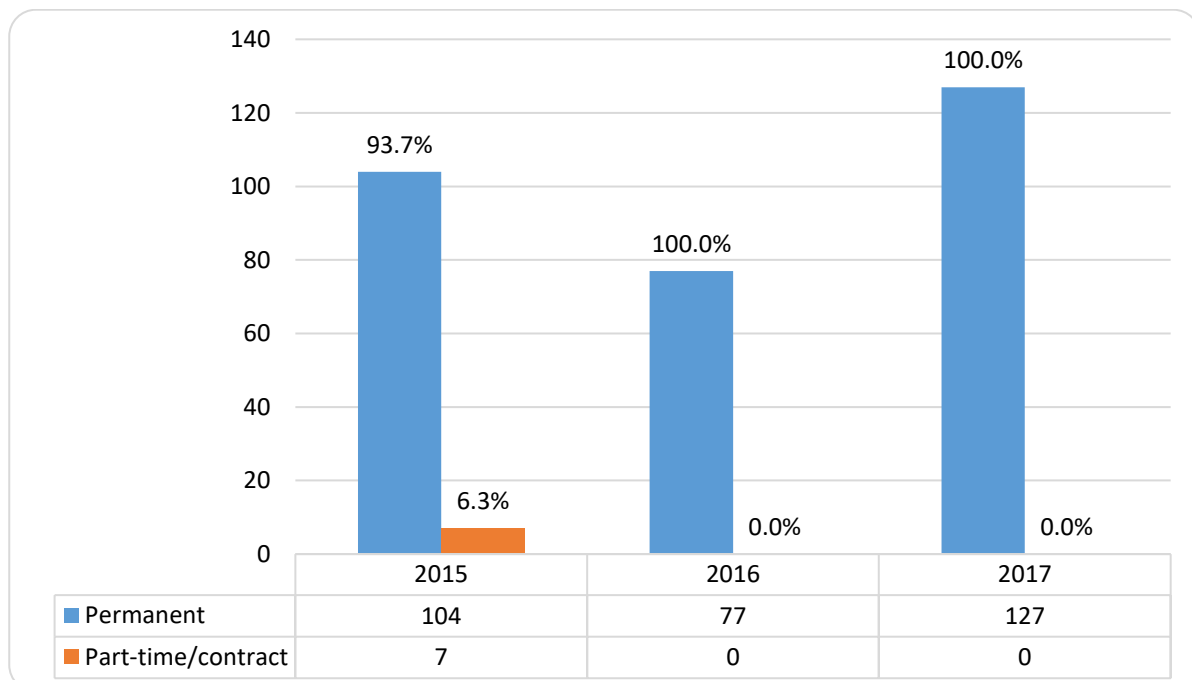


Figure 16: Professors as a % of all academic staff, 2015 – 2017

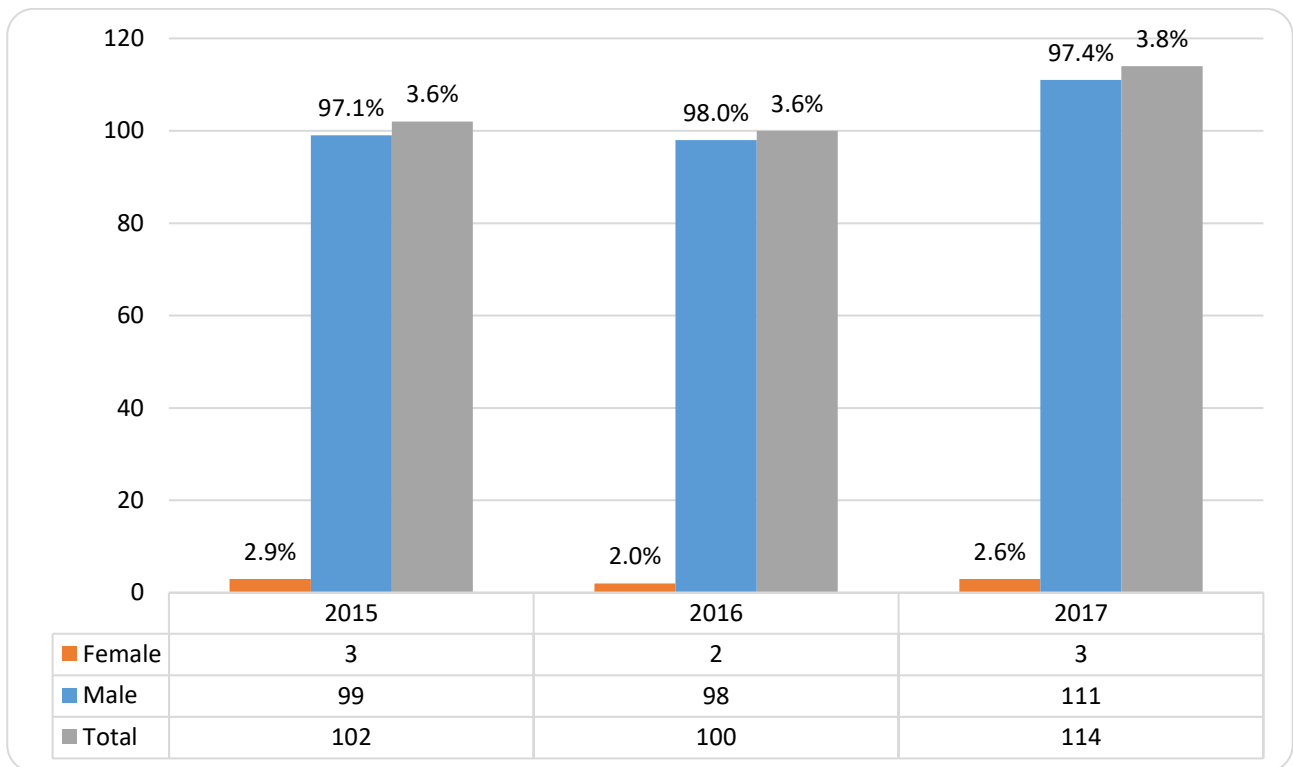


Figure 17: Associate professors as a % of all academic staff, 2015 – 2017

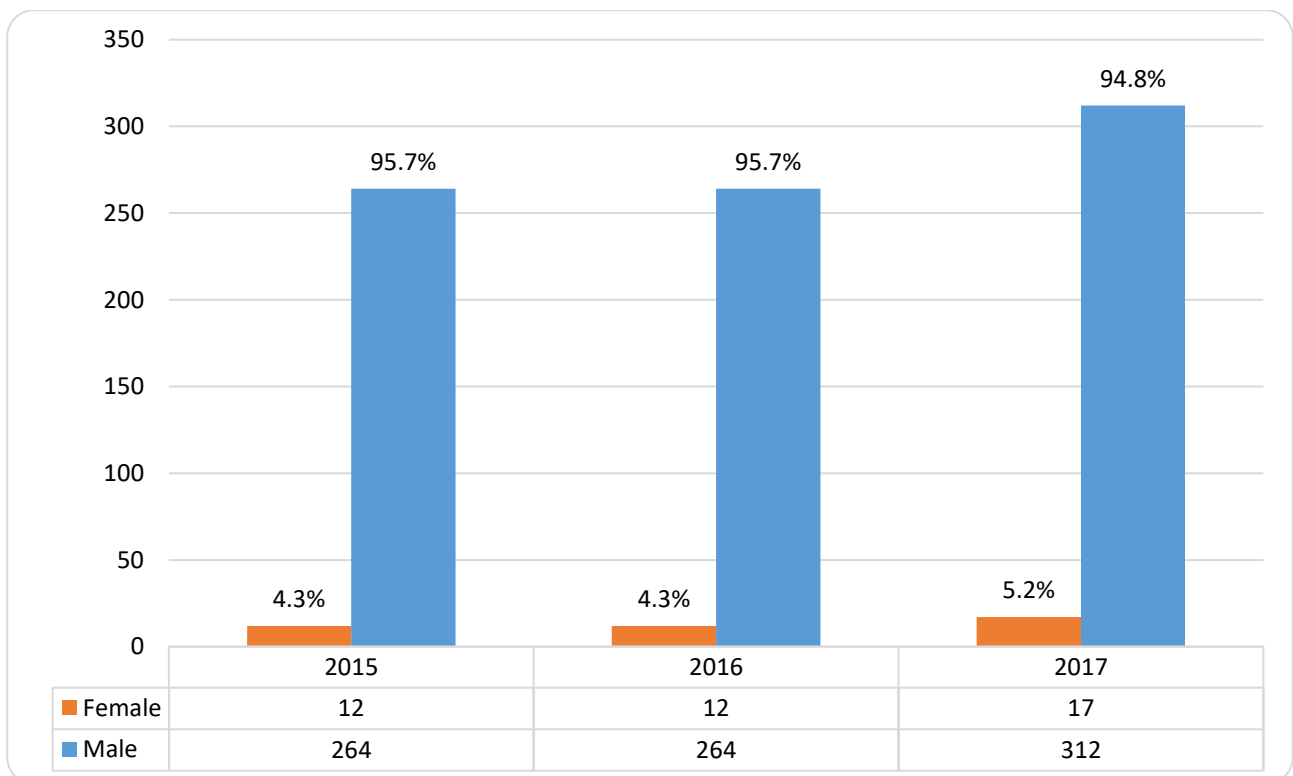


Figure 18: Senior lecturers as a % of all academic staff, 2015 – 2017

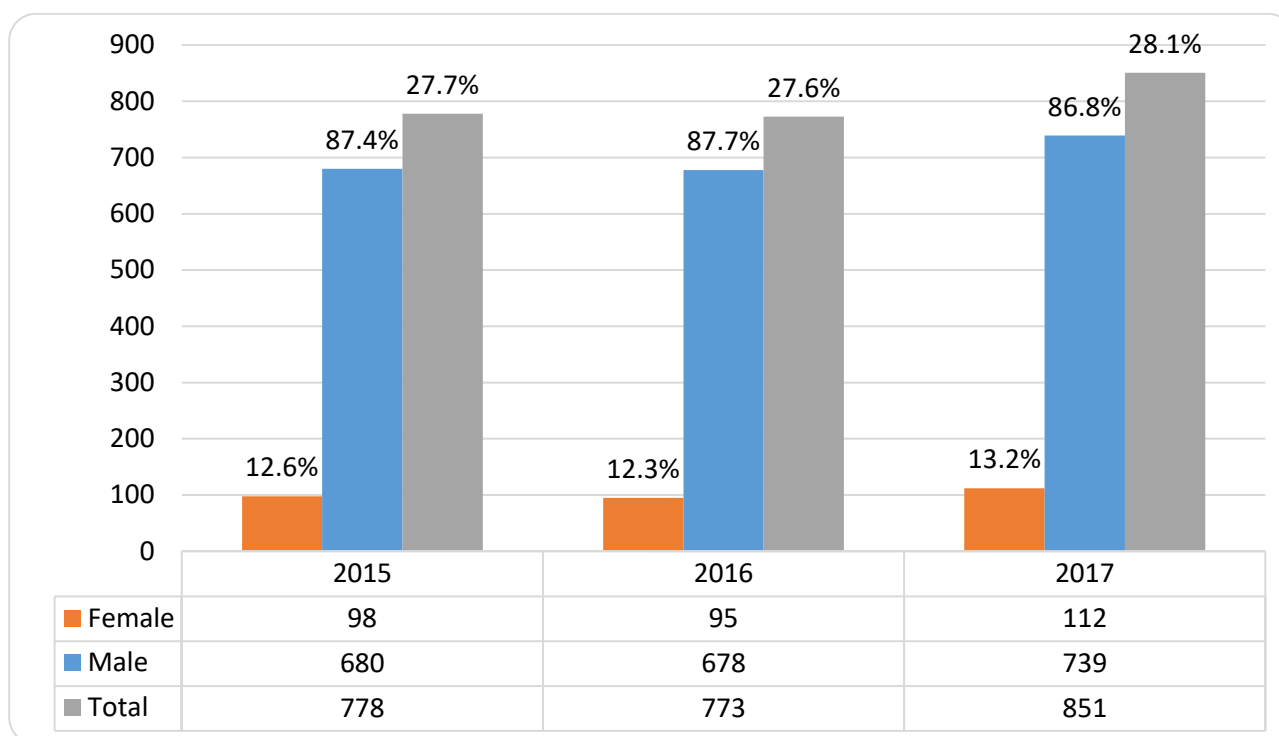


Figure 19: Lecturers and others as a % of all academic staff, 2015 – 2017

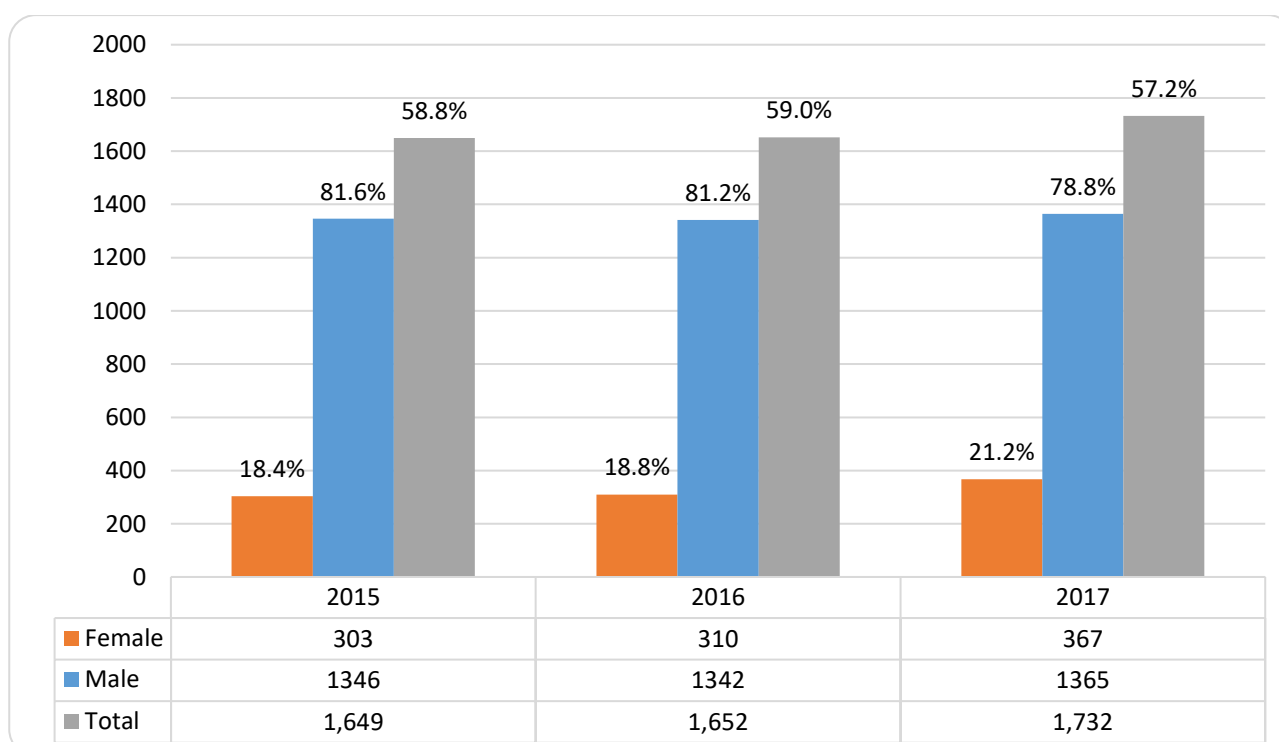


Figure 20: Research income by source, 2015 – 2017 (US \$)

