



European Association for Professions in Biomedical Science

Association internationale sans but lucratif, Place Jean Jacobs, 3 ♦ 1000 Bruxelles (Belgium)

www.epbs.net

Address for correspondence :
Gabriele Sander, General Secretary,
Kuno-Brandauerstr. 1
5020 Salzburg (Austria)



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Policy on Education for Biomedical Sciences

Gabriele Sander	♦	General Secretary
Kuno-Brandauerstr. 1	♦	A-5020 Salzburg (Austria)
Tel: +43 (0)664 380 4819	♦	Fax: +43 (0)662 4482 2621
gabriele.sander@aon.at		



Policy on Education

Contents

1	Background.....	3
1.1	Aims of the EPBS:.....	3
1.1.1	Members.....	3
2	Education of Biomedical Scientists	3
2.1	Education Current Status	4
2.1.1	Course Duration	4
2.2	Curriculum.....	4
2.2.1	Basic Sciences	4
2.2.2	Biomedical Sciences	4
2.2.3	Complementary Subjects.....	5
2.2.4	Clinical Practice	5
3	EU Directive on Free Movement of Professionals.....	6
4	Recommendations	6
4.1	Course level	6
4.2	Clinical Placement.....	6
4.3	Minimum Curriculum Requirements	6
4.4	Course Methodology	7
4.5	Competencies Required.....	7
4.6	Free Movement under EU Directive	8
5	Conclusion	8
	Figure 1 Basic Sciences Studied.....	4
	Figure 2 Biomedical Science Subjects Studied	5
	Figure 3 Additional and Complementary Subjects Studied	5
	Figure 4 Study Programme for Biomedical Scientists	6
	Figure 5 Education and Skills Pathway	7
	Figure 6 Core Competencies of a Biomedical Scientist.....	8



1 Background

Biomedical Scientists are scientists who work in the health services throughout Europe providing a clinical laboratory service. Many of them also work in clinical laboratories in Universities and on clinical research projects.

The continued health and wellbeing of our citizens is dependent on having competent scientists in this area.

The EPBS, European Association for Professions in Biomedical Science, was formed in May 1999. It is committed to promoting best practice and ethics for Biomedical Laboratory Scientists throughout Europe. EPBS is an International Non-Profit Association (AISBL) registered under the Belgian law with a Royal Decree in 2006.

Membership is open to national organisations representing Biomedical Scientists.

1.1 Aims of the EPBS:

1. promoting the essential role of Biomedical Science in the Health Care System to the general public,
2. co-operating with teaching establishments offering biomedical education,
3. promoting training and continued professional programmes for education development and co-ordinating activities,
4. providing advice to its members and others concerned with the provision of health care and its services to humanity,
5. establishing formal contact with international organisations active in the field of Laboratory Medicine,
6. establishing formal links with relevant European organisations,
7. providing advice, consultation and recommendations on facets of Biomedical Science to the European Commission and other relevant European Bodies and organisations,
8. Promoting the European ideology of Biomedical Science among its members.

1.1.1 Members

Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Iceland, Italy, Ireland, Netherlands, Norway, Portugal, Slovakia, Spain, Switzerland, Sweden, United Kingdom.

2 Education of Biomedical Scientists

The profession of Biomedical Scientists is regulated in different ways in each country with each country having its own academic courses and professional associations.

In furtherance of its objectives the EPBS is taking steps to bring about harmonisation of Education and Training of Biomedical Scientists throughout Europe.

Bearing in mind the Bologna Declaration, the Directive on the recognition of Professional Qualifications and in the best interest of patient safety the EPBS is of the belief that such a qualification level should be the minimum standard required to practice as an independent Registered Biomedical Scientist in Europe.

2.1 Education Current Status

EPBS reviewed the education status in its member countries in 2006.

This review examines the curriculum, requirement for clinical placement and the duration of study with level of final award.

Significant harmonisation has been observed.

2.1.1 Course Duration

While some diversity of course duration exists it is clear that the majority of countries, 80%, have achieved a standard of Bachelor or 1st cycle under the Bologna process. The remaining 20% are working towards achieving this standard.

The survey also revealed that the majority of countries provide opportunities for Biomedical Scientists to achieve higher level degrees to Masters and PhD level.

2.2 Curriculum

Figures 1 - 3 below depict the observed harmonisation in academic courses leading to qualifications in Biomedical Science.

While diversity between standards is observed the core principles of educating Biomedical Scientists through academic theory, clinical practice with problem based learning are maintained.

2.2.1 Basic Sciences

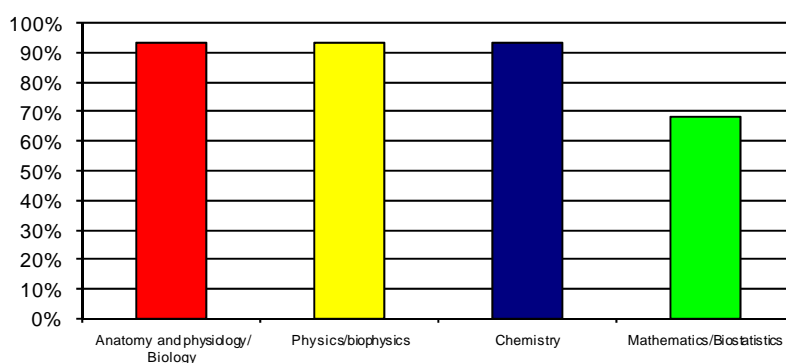


Figure 1 Basic Sciences Studied

Education in the core basic sciences is observed in over 60% of all member countries

2.2.2 Biomedical Sciences

Biomedical Sciences encompasses the common areas of Biochemistry, Haematology, Microbiology, Histopathology and Immunology. Pathophysiology and Molecular Biology are included in the Biomedical Sciences curriculum. Over 80% of member countries include courses in these areas with the additional subjects of Genetics and Toxicology in over 65%.

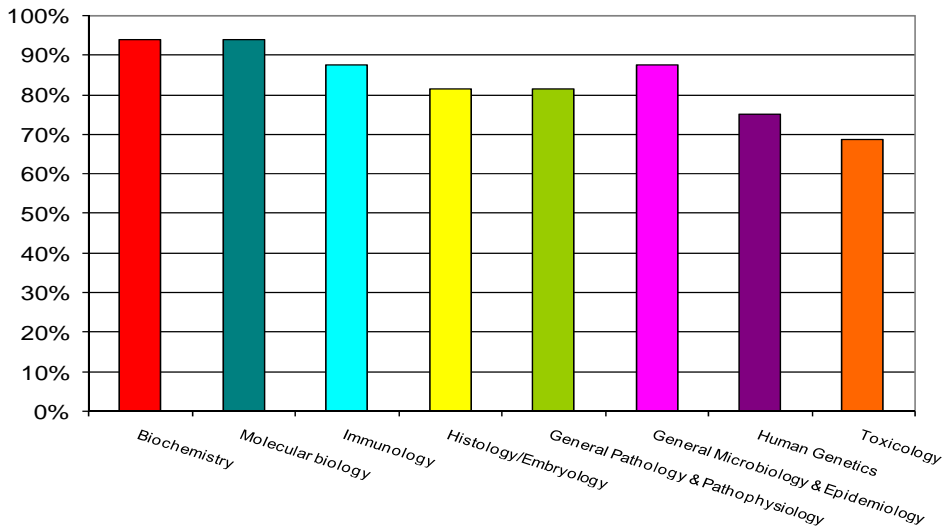


Figure 2 Biomedical Science Subjects Studied

2.2.3 Complementary Subjects

In addition to basic and biomedical sciences the majority of courses also cover complementary areas such as ethics, information technology and health care management. Where English is not the spoken language modules in scientific English may be offered. Almost 90% of the courses include individual research project work.

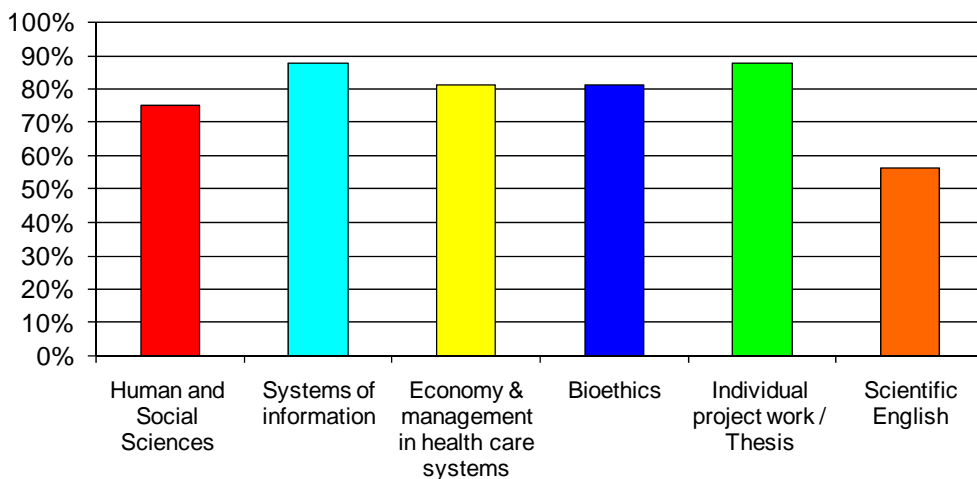


Figure 3 Additional and Complementary Subjects Studied

2.2.4 Clinical Practice

All countries surveyed indicated that their students undertake a period of supervised clinical placement. All students are offered placement in clinical laboratories. Some students have additional opportunities to receive experience in research laboratories and in industry.

3 EU Directive on Free Movement of Professionals

The EU Directive on the free movement of professionals defines levels of qualifications and outlines compensation measures permissible.

It suggests that common platforms would facilitate the free movement objective where differences are observed in standards.

It is policy of the EPBS to seek a common platform for the profession of Biomedical Scientists in Europe.

4 Recommendations

EPBS recommends that education programmes for Biomedical Scientists should equip graduates to be employed as decision makers in clinical laboratories. The programmes should prepare graduates to participate in leading and developing the clinical laboratory service ensuring patient safety, quality assurance and scientific rigour.

4.1 Course level

The minimum standard of education for Biomedical Scientists acceptable to EPBS is a Bachelor level or 1st cycle under the Bologna Process

The standard envisaged is a minimum of 240 European Credits Transfer System (ECTS) of higher Education including supervised clinical practice.

4.2 Clinical Placement

Before being registered or licensed for independent practice as Biomedical Scientist candidates should undergo a supervised and assessed clinical placement.

4.3 Minimum Curriculum Requirements

■ Basic Subjects

Anatomy and physiology/Biology
Physics/biophysics
Chemistry
Mathematics/Biostatistics

• Specific subjects

Scientific area	Specific for Biomedical Sciences	Complementary areas
Biochemistry Molecular biology Immunology Histology/Embryology General Pathology & Pathophysiology General Microbiology & Epidemiology Human Genetics Toxicology	Introduction to the profession Clinical Microbiology Clinical Immunology Haematology Clinical Biochemistry Clinical Pathology Immunohaematology or transfusion sciences Clinical Cytology Medical genetics Analytical methods Bio safety Quality control Biomedical science	Human and Social Sciences Systems of information Economy & management in health care systems Bioethics Individual project work / Thesis Scientific English

Figure 4 Study Programme for Biomedical Scientists

Courses should offer modules as outlined in Figure 4 above.

The programme of studies leading to evidence of formal qualifications in biomedical science shall include at least the subjects outlined.

One or more of these subjects may be taught in the context of the other disciplines or in conjunction therewith.

The theoretical instruction must be weighted and coordinated with the clinical instruction in such a way that the knowledge and skills required can be acquired in an adequate fashion.

4.4 Course Methodology

The core principles of educating Biomedical Scientists through academic theory, clinical practice with problem based learning should be maintained.

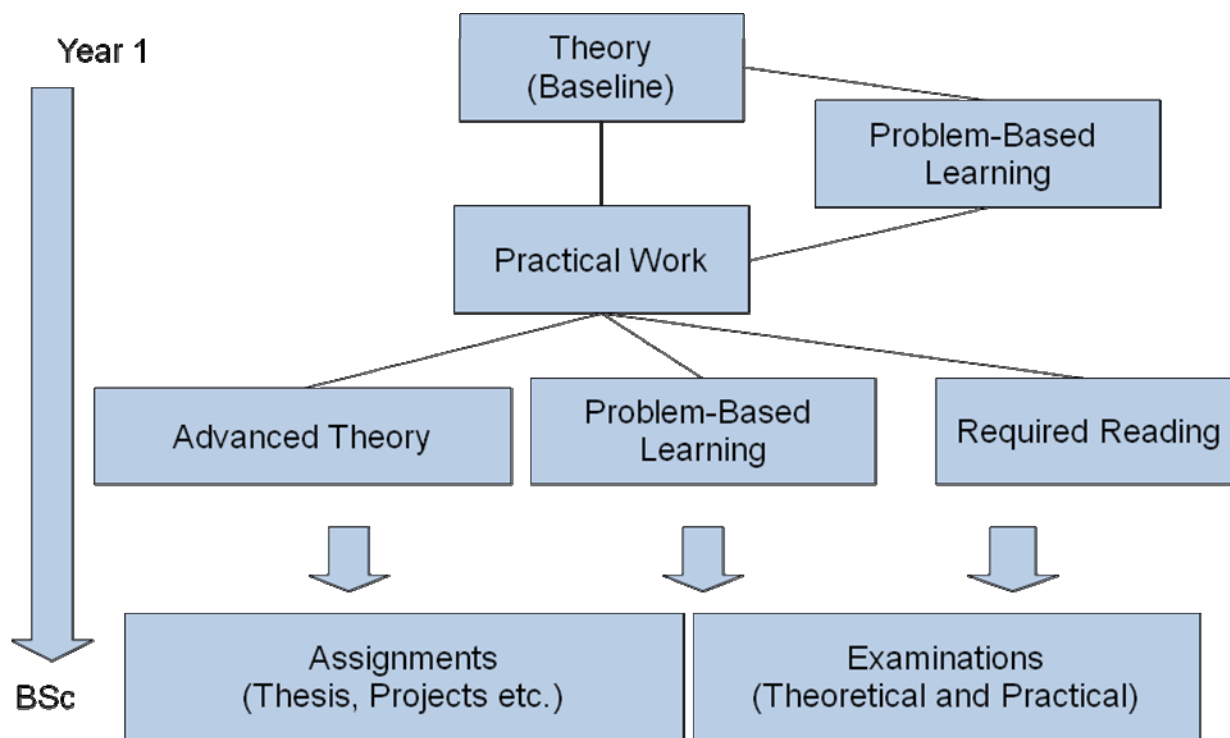


Figure 5 Education and Skills Pathway

4.5 Competencies Required

Biomedical Scientists in practice should possess the competencies outlined in Figure 6 below.



Figure 6 Core Competencies of a Biomedical Scientist

4.6 Free Movement under EU Directive

Where graduates demonstrate adherence to these recommendations they should be permitted free movement as Biomedical Scientist Professionals throughout Europe.

5 Conclusion

- The minimum standard of education for Biomedical Scientists acceptable to EPBS is a Bachelor level or 1st cycle (180 -240 ECTS) under the Bologna Process
- Progress to higher level degrees of Masters and PhD is an integral part of the Education and Training of Biomedical Scientists

**Approved by the General Governing Body of EPBS
16th October 2009, Oslo**

**Marie Culliton
President**