



Letter of support for International Baccalaureate Chemistry qualifications submitted for funding approval July 2023.

The purpose of this letter of support is to provide evidence of the University of Birmingham's recognition of the value of this qualification in preparing learners for transition to higher education courses in the subject, or a related area. This is provided to meet a requirement of the Department for Education's approval process for the funding of Alternative Academic Qualifications (AAQ).

This letter of support is in relation to the following qualifications

- IBO Level 3 Certificate in HL Chemistry (AAQ)
- IBO Level 3 Certificate in SL Chemistry (AAQ)

IBO Level 3 Certificate in HL Chemistry (AAQ)

- University of Birmingham recognises this qualification specifically as meeting subject entry requirements for courses such as: Chemistry BSc, Biochemistry BSc, Chemical Engineering BEng, Medicine and Surgery MBChB, for which an academic level 3 Chemistry qualification is a requirement.
- We recognise this qualification for entry onto many of our related courses where one or more academic level 3 science subjects are required or preferred.
- We recognise this qualification for entry to all undergraduate programmes for which there are no specific subject requirements, or as part of a qualifications profile which contains required subjects.

From our experience of admitting student to the university on the basis of this qualification we have found that IBO Level 3 Certificate in HL Chemistry (AAQ) provides sound academic preparation and a such is currently, and will be, accepted as a part of an applicant's Level 3 qualifications profile for admission to all Undergraduate degree programmes. Applicants offering IBO HL Chemistry are considered as being at least equally qualified for admission as those holding A level chemistry.

University of Birmingham has for many years accepted the IBO Level 3 Certificate in HL Chemistry for entry to undergraduate programmes, using the following equivalence scale to compare the IBO Level 3 Certificate in HL Chemistry to A level Chemistry:

IBO Level 3 Certificate in HL Chemistry (AAQ) grade	A Level Chemistry grade
7	A*
6	A
5	B
4	C

We have found that the grades achieved by applicants holding the IBO Level 3 Certificate in HL Chemistry are an accurate guide to potential achievement in undergraduate courses at the university and provide an effective basis for the selection process.

Whilst many students offering IBO HL Chemistry will do so within the IB Diploma programme, the University of Birmingham also accepts this qualification as either:

1. A standalone qualification offered in combination with other acceptable Level 3 qualifications: for example, IBO Certificate in HL Chemistry along with other IBO HL certificates, or alongside A levels or other acceptable Level 3 qualifications.
2. An academic component of the IB Career Related programme; whereby this qualification is accepted in combination with a suitable technical qualification such as a BTEC National Diploma. As such this qualification supports progression to our undergraduate programmes for learners who benefit from a mixed academic and technical curriculum at Level 3.

The IBO Level 3 certificate in HL Chemistry (AAQ) provides a firm foundation in the principles of chemistry allowing candidates to progress successfully to undergraduate courses where a deep knowledge of chemistry is a pre-requisite. The qualification content covers the fundamental principles of chemistry which includes:

- Models of the particulate nature of matter: the nuclear atom and electronic configurations
- Ideal gases
- Bonding and structure: ionic, covalent and metallic bonding
- Applying models of bonding to materials
- Classification of matter: the Periodic Table and the classification of elements. Functional groups and the classification of organic compounds.
- Quantitative chemistry. Counting particles by mass: The mole
- Inorganic and organic chemistry
- What drives chemical reactions – enthalpy, entropy and spontaneity
- Energy from fuels
- Rates of reaction and equilibrium
- The mechanisms of chemical change: Proton transfer reactions; Electron transfer reactions; Electron sharing reactions; Electron-pair sharing reactions
- Acids and bases: Brønsted–Lowry acids and bases, pH, pOH, pKa & pKb, salts, buffers
- Electrochemistry

Additionally, the qualification develops the key skills necessary for students to access undergraduate chemistry and other undergraduate science courses:

- Experimental techniques
- The use of appropriate technology to collect, analyse and model data
- The use of mathematics

In all of our undergraduate courses, regardless of whether or not a chemistry qualification is pre-requisite, we expect our students to take an inquiring approach to their studies. The IBO Level 3 Certificate in HL

Chemistry (AAQ) qualification supports this aspect through its inquiry process through which candidates demonstrate independent thinking, initiative, and insight through the following:

- Exploring and designing
- Collecting and processing data
- Concluding and evaluating

IBO Level 3 Certificate in SL Chemistry (AAQ)

We recognise this qualification for entry as part of a wider Level 3 qualifications profile.

The university welcomes applicants holding the IBO Level 3 SL certificate in Chemistry (AAQ) as it provides breadth to an applicant's studies and provides a complementary qualification alongside other IBO HL courses, or other acceptable Level Three qualifications. This is particularly valuable in providing them with the fundamental knowledge and understanding of chemistry which supports progression to a range of courses for which IBO HL or A level Chemistry are not prerequisite. We value the skills and knowledge that students with this qualification bring and the contribution to their success.

The IBO Level 3 Certificate in SL Chemistry (AAQ) provides a firm foundation in the principles of chemistry allowing candidates to progress successfully to undergraduate courses where a knowledge of chemistry is desirable. The course content covers the fundamental principles of chemistry which includes:

- Models of the particulate nature of matter: the nuclear atom and electronic configurations
- Ideal gases
- Bonding and structure: ionic, covalent and metallic bonding
- Applying models of bonding to materials
- Classification of matter: the Periodic Table and the classification of elements. Functional groups and the classification of organic compounds.
- Quantitative chemistry. Counting particles by mass: The mole
- Inorganic and organic chemistry
- What drives chemical reactions – enthalpy
- Energy from fuels
- Rates of reaction and equilibrium
- The mechanisms of chemical change: Proton transfer reactions; Electron transfer reactions; Electron sharing reactions; Electron-pair sharing reactions
- Acids and bases: Brønsted–Lowry acids and bases, pH

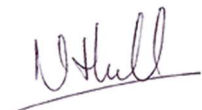
Additionally, the qualification develops the key skills necessary for students to access a wider range of undergraduate science courses:

- Experimental techniques
- The use of appropriate technology to collect data
- The use of mathematics

In all of our undergraduate courses we expect our students to take an inquiring approach to their studies. The IBO level 3 certificate in SL Chemistry (AAQ) supports this aspect through its inquiry process which includes:

- Exploring and designing
- Collecting and processing data
- Concluding and evaluating

University of Birmingham is therefore fully supportive of these qualifications continuing to be available to learners to support their progression to our undergraduate programmes of study.



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