



Admissions
Testing Service
Measuring Potential

BMAT

BIOMEDICAL ADMISSIONS TEST

Information for universities and policy makers



Making a difference to your admissions process

Universities are under increasing pressure to ensure they select students with the potential to succeed in higher education. In many countries, cuts in funding and an increase in tuition fees are driving this necessity. In other regions, a rising number of applicants to courses means new methods for selection are needed.

About the BioMedical Admissions Test (BMAT)

BMAT is designed to help you select students with the right skills and aptitude to succeed on a challenging medical, biomedical or veterinary course.

The test goes beyond assessing a student's academic ability at school level. It focuses on key skills needed for success in demanding science-based study, including critical thinking, problem solving, data analysis, communication and application of scientific knowledge.

- A 2-hour, pen-and-paper admissions test.
- Used by world-leading universities since 2003 – a proven and established test.
- Taken around the world in secure, authorised test centres.
- Suitable for students with English skills at CEFR* B2 or above.
- Developed, administered and marked by the Admissions Testing Service, part of Cambridge English Language Assessment: a not-for-profit department of the University of Cambridge.

Why use BMAT?

Select applicants who will succeed on the course

Our research shows a positive relationship between BMAT scores and on-course success. Low BMAT scores have also been shown to be a predictor of students who perform poorly on the course or fail to complete their degree.

Supporting inclusion

To support inclusion, universities are recommended to consider a range of factors when assessing a student's potential, and to *not* focus solely on school qualifications. BMAT measures skills needed for success in higher education, giving applicants the opportunity to show their potential in addition to their school academic record. In addition, BMAT is designed to be taken with minimal preparation. Support materials are freely available from our website, which means costly preparation courses are unnecessary.

Fair to all applicants

BMAT assesses students in a fair and objective way, giving all applicants an equal chance to demonstrate their potential. We routinely monitor the test performance of different groups (by gender, educational background, etc.) to ensure that there is no bias.

Underpinned by research

Our dedicated research team conducts rigorous investigations to ensure BMAT conforms to the highest quality standards, and makes a useful contribution to the university admissions process.

Supporting internationalisation

The increasing internationalisation of higher education means a growth in applicants from around the world. BMAT provides a common measure for comparing applicants with a wide range of qualifications. In addition, our global test centre network enables your applicants to take the test in their home country.

*Common European Framework of Reference for Languages (CEFR) – the international standard for describing language ability.

What's in BMAT?

Section 1: Aptitude and Skills		
Test focus	Question type	Timing
<p>Tests the ability to apply key skills used in undergraduate study:</p> <ul style="list-style-type: none"> • Problem solving (13 questions) Demands insight to determine how to encode and process numerical information so as to solve problems. Requires candidates to: select relevant information, recognise analogous cases, and determine and apply appropriate numerical and algebraic operations. • Understanding argument (10 questions) Presents a series of logical arguments and requires candidates to: identify reasons, assumptions and conclusions, detect flaws and draw conclusions. • Data analysis and inference (12 questions) Requires the use of information skills, data interpretation, analysis and scientific inference and deduction to reach appropriate conclusions from material provided in different forms: verbal, statistical and graphical. 	 <p>Multiple choice or short answer</p>	 <p>1 hour</p>
Section 2: Scientific Knowledge and Applications		
<p>Tests the ability to apply scientific knowledge typically covered in non-specialist school science and mathematics courses. There are 27 questions in total, including:</p> <ul style="list-style-type: none"> • Biology (6–8 questions) • Chemistry (6–8 questions) • Physics (6–8 questions) • Mathematics (5–7 questions). 	 <p>Multiple choice or short answer</p>	 <p>30 minutes</p>
Section 3: Writing Task		
<p>Tests the ability to communicate effectively in writing, organising ideas and presenting them clearly and concisely.</p> <p>Questions provide a short proposition and typically require candidates to:</p> <ul style="list-style-type: none"> • explain or discuss the proposition's implications • suggest a counter proposition or argument • suggest a (method for) resolution. <p>Candidates are required to answer one question from a choice of four, which are based on topics of general, medical, veterinary or scientific interest.</p>	 <p>Essay</p>	 <p>30 minutes</p>

Download the BMAT specification and past papers at: www.admissionstesting.org/resources

Who uses BMAT?

We work with universities around the world. These include:



Universiteit
Leiden
The Netherlands



Read what institutions have to say about BMAT

“ We have chosen to work with the Admissions Testing Service because it has demonstrated that BMAT can deliver robust validity data with regard to predicting who will make good doctors in the future. BMAT is proven, ethically aligned and most importantly it is fair; it gives our applicants the best possible opportunity to demonstrate their knowledge, excellence and potential, whatever their social backgrounds or educational chronology. We are confident that BMAT will help us to get the right undergraduates from amongst the brightest candidates. ”

Dr Gail Nicholls

Director of Admissions
University of Leeds School of Medicine, UK

“ We've seen from our statistics, year-on-year, that the students with the highest BMAT scores in Section 2 are the ones who are consistently at the top of our group at the end of the year. ”

Dr Brenda Cross

Admissions Tutor
UCL Medical School, UK

“ We are looking forward to using BMAT as part of our admissions process and believe that by testing aptitude, knowledge and written skills, BMAT will provide a robust and transparent means to select applicants for interview. ”

Darren Beaney

Admissions Tutor
Brighton and Sussex Medical School (BSMS), UK

“ We wish to assess more than just scientific knowledge, and therefore are particularly interested in determining how well candidates can utilise that knowledge to answer questions that require a certain degree of analysis and lateral thinking. We are also interested to see how well candidates can provide a written, concise, logical argument to support their views on a particular subject. These are all features of BMAT which have allowed us to determine how well candidates would fare on our course, and provide some predictive value when attempting to select the most appropriate medical students and future doctors for Singapore. ”

Professor John Laycock

Assistant Dean for Admissions
Lee Kong Chian School of Medicine, Singapore

Read more testimonials on our website: www.admissionstesting.org/casestudies

Understanding BMAT scoring and results

Scoring

Section 1 (Aptitude and Skills) and Section 2 (Scientific Knowledge and Applications)

- Reported on a 9-point scale – 1 (low) to 9 (high).

Section 3 (Writing Task)

- A score for quality of content
– on a scale of 0 (low) to 5 (high).
- A score for quality of written English
– on a scale of A (high) to E (low).

Results

- Results are provided directly to universities in electronic format.
- Universities receive an image of the applicant's Writing Task.
- Results are issued 2–3 weeks after the test session.
- Applicants receive their results using our online system shortly after universities receive the results.

Use of results

Results are typically used alongside other information available to admissions staff:

- Some universities score students' applications and place a fixed weighting on the BMAT score, alongside other criteria such as school grades. Other universities use BMAT scores as part of a more holistic review of a student's application.
- Some universities find that certain sections of BMAT are a particularly good predictor of student success on their course, and place more emphasis on these scores.
- Some universities use the response to the Writing Task as a basis for discussions at the interview.



Underpinned by research

Our dedicated research team conducts routine operational analyses and a wide range of validation work to ensure BMAT is a fair and valid tool in the admissions process.

BMAT scores must differentiate between applicants in a valid way, without discriminating against candidates from particular backgrounds. As a result, our research focuses on the fairness of the test for different applicant groups, as well as the relationship between BMAT scores and future course performance.

Operational statistical analyses

Candidate information

We collect candidate background information (such as gender, age and school) during the BMAT registration process. Other information provided by universities as part of the application process is also matched to BMAT data. This allows us to monitor any changes in the characteristics of BMAT candidates, and forms the basis of our research into test fairness.

We can make provisions such as enlarged exam papers or use of a laptop for candidates who have special requirements. Special consideration requests for candidates whose performance may have been adversely affected by illness, bereavement, or other unforeseen events, can be submitted after the test session and are passed on to the selecting institutions.

Routine analyses

In addition to analyses of item quality, potential bias is investigated by analysing the performance of different candidate groups on each BMAT item. This is known as Differential Item Functioning (DIF) analysis and is carried out after each test session.

Marking quality assurance

Each BMAT Writing Task response is independently double-marked. If marks are not within a fixed level of agreement between the two examiners, then the script is marked for a third time by another examiner. We carry out live statistical monitoring of our BMAT Writing Task markers to check for potential leniency, harshness and erraticism. We also run post-test analyses of marker performance and inter-marker agreement.



Validation research

Areas of validation

We carry out a wide range of validation research on BMAT, including work to inform construct validity (cognitive, context and scoring validity), criterion-related validity (concurrent and predictive validity) and test impact.

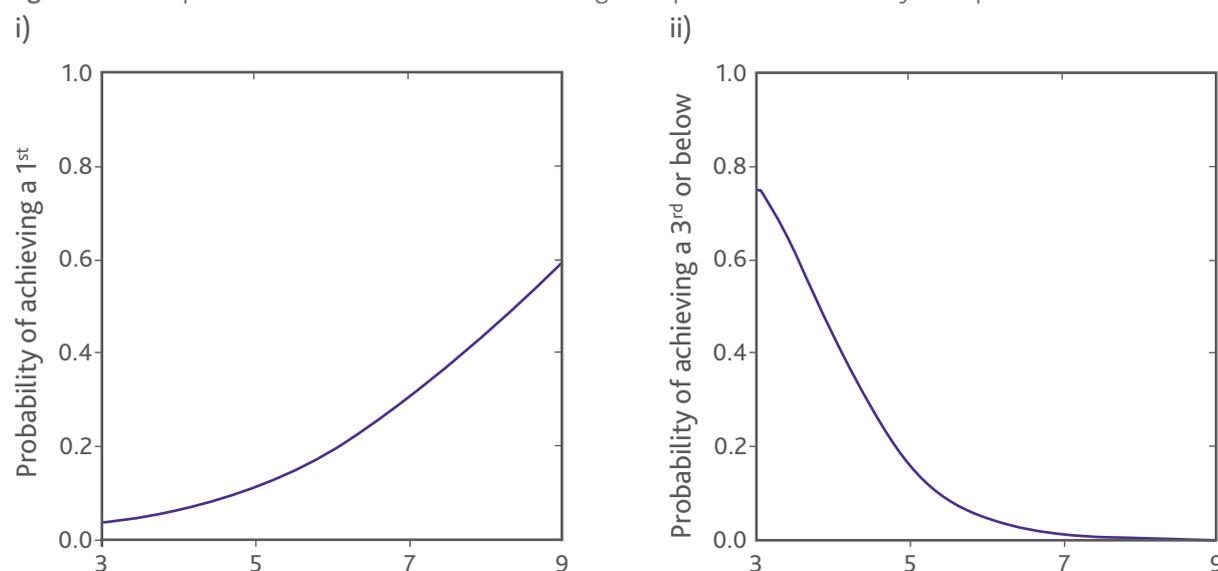
We also investigate key fairness issues such as candidates' preparation for BMAT and the opinions of students from different social and educational backgrounds.

Predictive validity

A positive relationship between BMAT performance and course performance provides evidence that BMAT scores are differentiating in a meaningful way between even the highest-attaining university applicants (at A Level, etc.).

The example plots below show the relationship between BMAT Section 2 scores, and i) high and ii) low performance in the 1st year of pre-clinical medical study.

Fig 1: Relationship between BMAT Section 2 scores and high/low performance in the 1st year of pre-clinical medical study.



Examination data: University of Cambridge. The X-axes cover the range of BMAT scores of the admitted students.

In this study:

i) A student with a BMAT Section 2 score of 5.0 has around a 0.1 probability of achieving a 1st class examination result whereas a student with a score of 7.0 has around a 0.3 probability.

ii) Students admitted with a low BMAT Section 2 score have a high probability of achieving a 3rd class result or below (3rd class, ordinary, fail or left the course).

We also compare the predictive validity of BMAT scores for different test-taker groups (e.g. males and females). If the same relationship exists between BMAT scores and course performance for different candidate groups then this provides strong evidence that the test is measuring ability fairly for all candidates.

Collaborative working

We work closely with our stakeholders and hold biannual liaison group meetings to:

- discuss key areas for research
- gather information about their admissions decisions
- track the course performance of admitted applicants.

Research is carried out at the whole-test level and for specific universities.

About the Admissions Testing Service

The Admissions Testing Service is part of Cambridge English Language Assessment, a not-for-profit department of the University of Cambridge. We offer a range of tests and tailored assessment services to support selection and recruitment for educational institutions, professional organisations and governments around the world. Underpinned by robust and rigorous research, our services include:

- assessments in thinking skills
- admissions tests for medicine and healthcare
- behavioural styles assessment
- subject-specific admissions tests.

Contact us

Stakeholder Relations
Admissions Testing Service

Cambridge English
Language Assessment
1 Hills Road
Cambridge
CB1 2EU

Tel: +44 (0)1223 552593

Email: atsinfo@cambridgeenglish.org

www.admissionstestingservice.org/bmat

