



A BRIDGE TO SOMEWHERE

Graduate students who head abroad to study face any number of challenges if they hope to prosper. **Virginia Gewin** provides a study guide.

Delgerjargal Dugarjav doesn't mind travelling long distances to pursue an education. She left her native Mongolia to earn a master's degree in India and went on, in 2008, to start a doctorate in forest ecology at the University of Wisconsin-Madison. Dugarjav wanted to study how carbon stored in the boreal forests of her home country might help climate-change mitigation. That kind of graduate research was simply not feasible in Mongolia owing to a lack of resources and expertise.

She expected academic challenges, but she had not anticipated the intensity of the transition — the culture shock and, in particular, the heightened level of competition in the United States. "Foreign students have to try much harder than US students to do the same work," she says.

Students such as Dugarjav who choose to study abroad face formidable financial, social and academic challenges, including difficulty finding affordable lodging, adapting to a new language and facing competition from fellow students. The transition may be rocky but, with assistance, is eminently manageable.

Dugarjav is among a steady stream of science students pursuing international academic dreams. The two most popular destinations for these aspiring graduate scholars are the United States and the United Kingdom. The United States, for example,

welcomed 68,069 students from India, 53,047 from China and 24,697 from South Korea in 2007, according to the Institute of International Education (IIE), a non-profit organization based in New York City that promotes educational exchange.

In the United Kingdom, the number of foreign students almost doubled between 1998 and 2007 from 117,290 to 229,640, according to London-based Universities UK, which represents the country's higher-education institutions.

Finding a good fit

A successful transition starts with finding the academic programmes that best suit one's specific needs. Students may be tempted to base their decision on an institution's general rankings, such as those conducted by *US News & World Report* or *Times Higher Education*. However, field rankings mean the most, especially for science and technology graduate programmes, says Peggy Blumenthal, executive vice-president and chief operating officer of the IIE. "Harvard and the University of California at Berkeley are good schools, but

it is important to ask if they are good in your chosen field of study," she says.

David Stevens, head of the International Office at University College London, suggests that identifying and establishing contact with potential supervisors at a school of choice can increase the success of an application. "When choosing a school, individuals should be ambitious, but also realistic," he says.

Contacting a professor or student at a university of interest can help students gauge their potential success there. Dugarjav first set her sights on the University of Wisconsin-

Madison when she met a student from the university during a 2001 workshop in Mongolia on long-term ecological research. The University of Wisconsin-Madison forest ecology programme, she discovered, was a good fit with her interest in carbon cycling.

Several organizations make it their mission to provide insights into academia, culture and economics for students from abroad.

The British Council — the United Kingdom's international organization for cultural relations and educational opportunities — has offices in 110 countries



Delgerjargal Dugarjav: busy.

around the globe. Staff can help students in those countries to explore different UK universities' specialities, seek scholarships and funding support, and learn about life in different UK cities. Likewise, EducationUSA, a network run by the US Department of State, has more than 450 offices operating in 170 countries. Its staff aims to inform prospective students about the diverse education opportunities at more than 400,000 US colleges and universities.

When choosing a university, students should also consider the cost, the climate, the size of the city, the local amenities and the cultural diversity, say university advisers. "We find that many foreign nationals value the cultural diversity found in all the major UK cities," says Catherine Marston, a policy adviser at Universities UK.

Metropolitan centres aren't the only ones to value cultural diversity. Purdue University in West Lafayette, Indiana, for example, has an 'international friendship programme' that matches community residents with new students. Some 175 students were matched last autumn. Purdue's Office of International Students and Scholars organizes a variety of social and cultural outings — from basketball games to Amish-country field trips — for the approximately 40% of Purdue's graduate students who come from abroad. "We try to give our international students a rich cultural experience," says programme director Michael Brzezinski.

The funding factor

Finding a way to pay for a rich academic experience is the next hurdle. Many foreign graduate students secure funding through their host country or through a research or teaching fellowship from the department of the university they plan to attend. Purdue funds 70% of its students through this mechanism, which again highlights the benefit of establishing departmental contacts.

Partnership schemes designed to support individual nationalities, such as Commonwealth scholarships that aim to attract students from Singapore or Australia to the United Kingdom, or partnerships with companies looking to target specific research areas, also exist at most universities. But government-sponsored scholarships, such as the UK Chevening programmes or the US Fulbright programmes, are among the most prestigious awards open to foreign nationals. Dugarjav jumped at the chance to apply for a fully funded PhD through the International Fulbright Science and Technology Award. The programme gives out roughly 45 awards each year to outstanding foreign students in fields from neuroscience to astronomy. The three-year awards pay a monthly stipend plus tuition and fees, books, equipment, travel, research and professional conference allowances. After that, the universities

continue their support until the students complete their programmes. Currently, 40% of Fulbright scholars do science research.

But it's not just about academia. College advisers make it clear that admission committees are interested in a person's leadership qualities. "Scores and grades speak for themselves, but students need to make sure their personality, energy and passion for their research field are evident on the application," says Danielle Guichard-Ashbrook, associate dean for international students at the Massachusetts Institute of Technology in Cambridge. Foreign students, especially those in an area where progress is largely determined by test scores, may not appreciate the need to reveal their motivations, says Guichard-Ashbrook.

Mixed feelings

Once at university, students should be prepared to experience a range of emotions. Exploring cultural differences makes the first few weeks in a new country exciting. But once the excitement ebbs, typically after about two months, many students become frustrated, both culturally and academically.

"All students go through culture shock — it's very normal," says Joanna Shearer, head of international student recruitment at Imperial



"All students go through culture shock — it's very normal. It is important to keep a sense of humour."
— Joanna Shearer

College London. She says it is important to keep a sense of humour, especially with respect to cultural differences. Her office, as with those at many universities, offers a tutorial of regional slang terms for incoming students as part of their orientation. "The students who are successful understand that there will be differences and will come with a curiosity to explore those differences," says John Greisberger, director of the International Center at the University of Michigan in Ann Arbor. He says good schools offer programmes that help students adjust culturally and in other ways.

John Pearson, director of Stanford University's Bechtel International Center in Palo Alto, California, has found that foreign students

appreciate a clear explanation of the rights and responsibilities they must uphold as part of their foreign student status in the United States. For example, students must obtain a social security number and maintain an accurate home address in the university system in order to conform with federal regulations requiring universities to keep track of foreign students. (See 'Tips for success.')

Nonetheless, students must find a way to balance their academic and social pursuits, notes Guichard-Ashbrook. "The most successful and happiest students are the ones who have a life outside the lab," she says. Martin Petricic, a Croatian PhD student in ocean engineering at the University of California at Berkeley, has continued his lifelong hobby of fencing in an effort to meet more people. Petricic views his time in the United States as an opportunity to make contacts. "These contacts may open doors to future research collaborations," he says.

For Dugarjav, making the most of her US graduate experience means finding a way to return to Mongolia to not only conduct research, but also to help educate the younger generation. "I would really like to use what I have learned," she says, "to improve the education system back home."

Virginia Gewin is a science writer based in Portland, Oregon.

TIPS FOR SUCCESS

DO apply for a student visa as soon as possible. The visa process in both the United States and Britain, for example, has undergone revisions in recent years. Lengthy delays are no longer the norm but can occur.

DON'T assume that student visas are general and allow entry to any university at which you have been accepted. Student visas are site-specific. New US and UK regulations, designed to track foreign students more effectively, grant visas to one institution.

DO get involved with the student club dedicated to your particular nationality.

DON'T let that be your only connection to other students. Explore other ways to connect with fellow students.

DO seek academic help or tutoring if needed.

DON'T think that asking for help is a sign of weakness. International student offices provide a number of support programmes to help students be successful. **V.G.**

Clarification

The Feature 'Seeds of collaboration' (*Nature* 461, 1158-1159; 2009) omitted that the Searle family topped up the US\$5 million it gave to establish the Chicago Biomedical Consortium with a further \$15 million. In addition, it should be made clear that the University of Chicago is the sole institution managing Argonne National Laboratory.