SCHOOL OF

BIOLOGICAL SCIENCES

A SCHOOL OF THE
COLLEGE OF SCIENCE
Celebrating 15 Years of Success
Welcome

The National Technological University (NTU) is one of the leading universities in Singapore. Joining NTU’s School of Biological Sciences (SBS) allows you to develop your own interests and tailor your learning to your career aspirations. With our global collaboration network, you will experience overseas exchanges, guest lectures from industry experts and internships at multi-national companies. You will be taught by research-active faculty staff and get the opportunity to become involved in research projects. You will learn, think and behave like a scientist. Our graduates have secured jobs before graduation, obtained national and international scholarships for postgraduate studies.

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Since its inception in 2002, the key focus of the School of Biological Sciences (SBS) has been to prepare our students for the ever-changing demands of the biomedical and life science work environment.

The expectations of today’s graduates are very different, even when compared with ten years ago. It is for this reason that SBS, along with other schools at NTU, has developed a range of second major programs that allow students to diversify their skills in line with their individual interests and goals. In addition, our school is unique in Singapore in offering a double degree program combining a Bachelor of Science (Honours) in Biomedical Sciences and a Bachelor of Chinese Medicine together with our partner, the Beijing University of Chinese Medicine. The launch of NTU’s Lee Kong Chian School of Medicine, in 2014 in partnership with Imperial College London, creates even more opportunities for our students and as SBS and the School of Medicine explore synergies.

Teaching and research at the School of Biological Sciences is of the highest calibre with many professors leaders in their fields. Our research focus reflects development in science as they happen: the possibilities offered in the era of genomics, and in food and plant biology at a time that the world is facing global warming and overpopulation are awe-inspiring. Our professors are successful in competing for research funding and support. Our research output is evident in the high numbers of top quality scientific publication and patents awarded. We provide ample opportunity for students at both undergraduate and post-graduate levels to learn and to gain hands-on training from our experts.

The curriculum at SBS will provide our students with the skills and knowledge required to excel in today’s global economic environment. SBS stays in regular contact with an Industry Advisory Panel to ensure that the curriculum reflects the needs of both local as well as international employers.

Globally, the reputation of SBS continues to rise as its investment in leading research and staff and student development continues. This is reflected in the high rate of job placement and starting salaries of our graduating students.

Students graduating from SBS have obtained employment in a wide range of industries ranging from the pharmaceutical to the financial sectors as well as academic research posts at universities and research centers in Singapore and around the globe. Others have chosen careers in teaching and medicine. And above all: a degree from SBS opens the door for our graduates to pursue PhDs at the best universities around the world, including the University of Cambridge, Karolinska Institute and Yale University, to name but a few.

The rich mix of culture and nationalities among our professors and students, our varied opportunities for overseas study and our partnerships with renowned institutes worldwide, provide for a global perspective on science and industry for both our undergraduate and graduate students.

I hope that you will join us at SBS—it is an exciting journey!

Peter Preiser
Chair, School of Biological Sciences
Highlights

Constantly in-tuned with future market needs, our School offers various relevant bioscience degrees:

- Second Major in Biomedical Materials  
  SINCE 2016

- Second Major in Biomedical Structural Biology  
  SINCE 2015

- Second Major in Chemical Biology  
  SINCE 2014

- Second Major in Food Science & Technology  
  SINCE 2013

ONLY BIOMEDICAL & TCM DOUBLE DEGREE PROGRAMME

Our School offers the only double degree programme in B.Sc in Biomedical Sciences with B.Medicine in Chinese Medicine in the region since 2005. (See page 24)
Summary of our Courses at a Glance

B.Sc. (Hons) in Biological Sciences
- An established and recognised, direct honours Biological Sciences degree programme
- Option for international exchange with over 150 partner universities
- Choice of final-year projects or internship
- Option to take a minor in any discipline

B.Sc. (Hons) in Biological Sciences with Second Major in Biomedical Materials
- Cross-trained in Biology and Biomedical Materials including nanomedicine and drug delivery.
- Increased working opportunities in the development of new clinical treatments for injury and diseases.

B.Sc. (Hons) in Biological Sciences with Second Major in Biomedical Structural Biology
- Cross-trained in Biology and Structural Biology including Medicinal Chemistry and Biotechnological aspects
- Enhanced working opportunities in areas such as drug discovery, protein engineering and vaccine design

B.Sc. (Hons) in Biological Sciences with Second Major in Chemical Biology
- Cross-trained in Biological Sciences and Chemistry
- Selected modules taught by Division of Chemistry & Biological Chemistry

B.Sc. (Hons) in Biological Sciences with Second Major in Biomedical Materials
- Interdisciplinary content that combines Biological Sciences with Food Science, Processing and Engineering.

Double Degree: B.Sc. (Hons) in Biomedical Sciences and Bachelor of Medicine (Chinese Medicine)
- This innovative ‘East meets West’ programme trains students in biomedical research and Chinese Medicine.
- 5-YEAR PROGRAMME WITH FIRST 3 YEARS IN SINGAPORE AND 2 YEARS AT THE BEIJING UNIVERSITY OF CHINESE MEDICINE

PARTNERSHIP WITH WAGENINGEN UNIVERSITY, BEST UNIVERSITY IN THE NETHERLANDS FOR 11 CONSECUTIVE YEARS.
The School of Biological Sciences is a place where exciting research takes place daily. The people who work and teach here are also working to solving some of the world’s global problems.

Assoc. Prof. Ajai Vyas and his team at the Ethoneuro Laboratory work at the interface of neurobiology and parasitology. The research seeks to understand how parasites can manipulate social behaviours of their hosts.

Asst. Prof. Oliver Mueller-Cajar and his team is hoping to one day be able to generate more food for the world by improving plants’ photosynthetic efficiency through the study of Rubisco.

Asst. Prof Kimberly Kline is focused on understanding the molecular mechanisms by which Enterococcus faecalis, and related Gram positive pathogens, interact with one another to form bacterial communities and interact with the host to cause disease.

Prof. Daniela Rhodes, a world-renowned expert in chromatin biology, is the director of the $30 million NTU Institute of Structural Biology and is carrying out ground breaking research on the structure and function of telomeres that impact both cancer and aging.
NTU Cryo-Electron Microscopy Laboratory is a state-of-the-art facility equipped with an advanced cryo transmission electron microscope. It is able to take high resolution 3D imaging of molecular structures half a million times smaller than a grain of rice (10 nanometers).

Metastases are the cause of 90% of human cancer deaths. Understanding the critical steps in cancer metastasis, recurrence and developing immunotherapy for metastatic cancer is one research interest of Assoc. Prof. Andrew Tan’s team.

Assoc. Prof. Su I-Hsin and her team’s studies aim to identify and establish novel molecular networks regulating various cellular functions in immune cells. Their results could provide a mechanistic basis for developing novel therapeutic intervention strategies in human diseases.

N-WASP regulates cell migration and proliferation, main causes of cancer associated death, Assoc. Prof. Thirumaran Thanabalu’s team is seeking to discover a better understanding of N-WASP activity which will lead to better diagnosis and prognosis of skin cancer.
Our broad-based curriculum grounds students in core modules and allows for flexibility to take on electives throughout the years. The wide variety of interdisciplinary modules available equip students with specialized knowledge in their area of interest.

Our community of international professors not only come from renowned universities such as Cambridge, Oxford, Stanford and Harvard but are mentors dedicated to imparting invaluable knowledge to students. They are also research-active faculty working on problems that impact Singapore and the world.

The school has established an Industry Advisory Panel from leading players in the life sciences industry and government agencies to help the school align its curriculum and prepare students for real world challenges in the 5 to 10 years ahead.
Global Exposure & Industrial Internship Opportunities

Students have the opportunity to go for overseas exchange at partner universities in countries such as USA, Sweden, UK, Korea, Japan and Canada. With strong industry partnerships, students can intern at KK Women’s & Children Hospital, Singapore General Hospital, Lonza, Merck and Baxter, among others.

Vibrant Student Life

The Biological Sciences Club is a student-run club that brings the SBS community together through a variety of welfare and campus events throughout the year. Alumni-student sharing events are organized during term time where students get to interact and gain insight into various industries.
A Myriad Of Career Options

Healthcare
- Yan Yew Wai, Acupuncturist, Tan Tock Seng Hospital
- Zhang Ruifen, Traditional Chinese Medicine Physician, Eu Yan Sang International Ltd

Biomedical & Pharmaceutical
- Lim Tian Zhan, Manufacturing Biotechnologist, Lonza Biologics Tuas Pte Ltd
- Chia Na Yu, Investigator II, Novartis
- Angeline Chong Run Mei, Biotechnologist, Lonza Biologics Tuas Pte Ltd
- Michelle Soh See Mun, Microbiologist, Schering-Plough

Banking, Finance & Legal
- Allister Tham, Management Associate, Tan Tock Seng Hospital
- Zeng Renchun, Vice President, Institutional Banking, DBS Bank
- Phillis Khoo, Asst. Vice President, Moody's Singapore
- Subhajeet Parida, Fixed Income Trader, Citibank
- Carlene Yap Tien Ling, Patent Executive, Drew & Napier LLC
- Chen Huijia, Postdoctorate Research Scientist, University of Oxford

Education
- Sherry Tan, Head of Dept (Science), Ministry of Education
- Wu Bin, Asst Professor, Nanyang Technological University
- Glendon Phua, Teacher, Temasek Junior College

Research
- Michelle Soh See Mun, Microbiologist, Schering-Plough
- Ng Mei Yun, TCM Physician, TCM TREND
Our SBS graduates are employed across diverse industries...

As a life sciences graduate from the School of Biological Sciences, you will have a good set of career options ahead of you. For those seeking out a career as a medical doctor, veterinarian or research scientist, these among others are the popular routes of our graduates.

In the public sector, life science graduates are well sought after in hospitals, research institutes, government agencies and forensic departments.

Commercial sectors that actively seek out graduates from the life sciences include the pharmaceutical, biotechnology, food, water and agriculture industries for roles such as process engineers, biotechnologists, QA specialists and clinical researchers. There is also demand for life science graduates to contribute to the public understanding of science as journalists, scientific writers and information/liaison officers.

Financial and legal sectors also require analysts with life science knowledge for risk assessments, patents for molecular biology and biotechnology used for drug and medical applications.

A postgraduate qualification with National Institute of Education for entry into the teaching profession is also an option.

For those with an entrepreneurial spirit, the broad range of electives to choose from will endow graduates with the necessary skills and tools to start their own businesses.

The opportunities for undergraduates in general, include careers outside of biology where transferable skills taught in the degree programme will be of benefit in management, financial sectors and human resources.
Seow Wan Xuan
2016 Exchange at Technical University of Denmark (DTU), Copenhagen, Denmark
“An exchange in Copenhagen, Denmark opened my eyes to the raw beauty and majesty of Europe or more specifically the Nordic region. This exchange has equipped me with essential skills and the necessary networks, which I feel will allow me to benefit the future Singapore and the Future Me.”

Melissa Ong Hui Min
2016 Exchange at University of Leeds, United Kingdom
“Never underestimate your potential, go forth and conquer the world!”

Kelly Wong Li Lin
2016 Exchange at University of Leeds, United Kingdom
“Embarking on a semester worth of adventures in the UK is akin to cruising into uncharted territories as the captain of the ship—definitely an exciting, enriching and life-changing experience!”

Shereen Tan Ming Yan
2016 Exchange at University of Western Ontario, Canada
“I really love this slow paced country and their awesome citizens!”

Bernadette Lee Jia Rong
2016 Exchange at Arizona State University, United States of America
“Experiencing a semester in a vibrant country like America has been an eye opening and enriching journey that enabled me to experience and understand other cultures.”

Christina Tan En Hui
2015 Exchange at University of Manchester, United Kingdom
“Planning for exchange may be daunting, but the returns, experiencing a different culture and learning precious life lessons, are priceless.”

Joey Tan Zu Er
2016 Exchange at Aston University, Birmingham, United Kingdom
“A single shot may never summarize a life that has taught me true independence and gave me a new perspective to life. I came back as someone different and most certainly, someone stronger!”

Mohammed Aqil Bin Mohd Mislan
2015 Exchange at Karolinska Institutet, Solna, Sweden
“Lagöm – the essence of Swedish culture which loosely means not too little, not too much – perfectly describes everyday life in Stockholm and Karolinska!”

Yang Ming
2016 Exchange at Ludwig Maximilian University of Munich, Germany
“A semester exchange in Munich, Germany gave me a chance to merge into European culture and lifestyles. Life in Munich is calm and peaceful, but at the same time, exciting and adventurous. Dunkelbier and Brezels are two things you just cannot miss out in Munich! (They still appear in my dreams!)”

What can you Experience?

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“Adventure is the best way to learn! Besides the opportunities to immerse in new cultures, pick up new languages and boost your own personal growth, the greatest part of an exchange program is probably that it offers you the best excuse and chance to travel around the world. If not now, then when?”

Chu En Xian
2016 Exchange at Seoul National University, South Korea

“What I love most about South Korea is its boundless beauty of nature, from its mountainous landscapes to the massive waterfalls; they were truly breathtaking.”

“Annyeonghaseyo, I made new friends and gained memorable experiences through activities such as paragliding, picking strawberries and climbing a mountain.”

Quek Jun Ping
2016 Exchange at Pusan National University, South Korea

“During my time in South Korea, I fell in love with its boundless beauty of nature. From the majestic mountains to the magnificent waterfalls, they truly took my breath away.”

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Alex Li
2015 Exchange at Dong-A University, Busan, South Korea

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“For those who are hesitant to participate in the exchange programme, do consider joining the programme. Wait no further! A different learning system, new cultural experiences and opportunities to make friends from all over the world await in your future exchange stint!”

Benjamin Sim Kunyi
2015 Exchange at Hong Kong University of Science & Technology, Hong Kong

“The notion is called wabi-sabi life, like the cherry blossom, it is beautiful because of its impermanence, not in spite of it, more exquisite for the inevitability of loss. - Peggy Orenstein”

Jaclyn Ee Hui Ying
2016 Exchange at Tokyo Institute of Technology, Japan

“No regrets in going out of my own comfort zone into Australia, for a journey of self-discovery, enriched learning and fun!”

Julianne Lee Siwen
2016 Exchange at Macquarie University, Sydney Australia

“It’s a journey about pushing your limits and venturing beyond your comfort zone.”

Felicia Kua Wan Lin
2015 Exchange at Vietnam National University, Ho Chi Minh City, Vietnam

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Neo Wei Yi  
Class of 2016  
Internship @ Banyan Tree Marine Lab, Maldives  
Duration 26 Weeks

Q1. Why did you choose to do an internship?
Deciding to do an overseas internship was one of the best choices I made in NTU. Besides the many internship opportunities offered by SBS, the school also provides students the flexibility to seek and create their own internship experiences in a field related to biological sciences. I cherish this prospect to seek an intern position at the Banyan Tree Marine Lab in the Maldives where I can gain hands-on experience and work with experts in marine biology.

Q2. Please share with us your job scope?
My daily schedule is very hectic but fulfilling. I do not have a typical routine and every day is excitingly different. The majority of the work carried out at the marine lab involves snorkeling and diving, and I spend a lot of time in the water. The duties are categorized into restoration, research, education and conservation. Together with the marine lab coordinator, we restore coral reefs by relocating or planting corals on man-made frames and building large coral gardens on the bottom of the sea. We measure and collect specific data such as coral growth or fish species for reef monitoring and scientific research. We did reef clean-ups and starfish removal to ensure the reef is kept pristine and healthy. I also lead guests on snorkeling trips and conduct presentations to educate them on the marine life in the Maldives. Occasionally, we also rescue marine life caught on lines and feed wild stingrays!

Q3. What are some interesting encounters you gained at your internship?
Swimming up close with whale sharks, the largest fish in the world, was definitely a dream come true. The diversity and abundance of marine life in some of the untouched coral reefs is simply astonishing. Waiting four hours in the water till late night for a week to observe one of the greatest natural marvels—mass coral spawning, which happens only once a year was also definitely worth the anticipation.

Q4. How did your education in SBS aid in your internship experience?
The choices of modules across the seven semesters for biological sciences are wide ranging and allowed me to select topics that are of most interest to me and for my future career. I also had the opportunity to do the BS3331 Undergraduate Advanced Experimental Biology (UAEB) Workshop in Applied Immunology, which is really great for intensive lab work practice. BS9001 Research Experience also felt like a short internship and allowed me to gain work experience in a ‘real world’ lab that produces revolutionary research. The vast amount of exposure has prepared me with the knowledge and confidence I need for my research project that I am currently working on as part of my internship. Not forgetting the endless reports, presentations and projects that trained me to manage my time better and deal with deadlines.

Q5. What are some skillsets or opportunities you gained via internship?
As the only Singaporean on the small resort island, I have the opportunity to meet people of diverse nationalities and build interpersonal skills. Having to juggle internal projects and provide impeccable guest service has also taught me to adapt quickly and handle challenges. Interestingly, being part of the hospitality industry has also allowed me to understand the basic resort operations and attain knowledge from other departments in the company. Most importantly, I am privileged to be advised and trained by the prominent marine biologist, Dr. Steve Newman on field research techniques and many other aspects of the internship.

Q6. Any advice for current undergraduates?
Plan ahead and pace yourself through the semesters. It is easy to ‘burnout’ later in the semester as the intensity and workload increases. Participate in one of the many overseas programs offered by NTU and recharge yourself by joining an interest club. Lastly, maintain a healthy balance of work and play. Spend quality time with your school friends and you will find a helping hand anytime because a friend in need is a friend indeed!
**Jerrica Shee Shi Ting**  
*Class of 2016, CN Yang Scholars Programme  
Internship @ Deloitte & Touche Enterprise Risk Services  
Duration: 22 Weeks*

Q1: Why did you choose to do an internship?  
I have always wanted to work in the healthcare sector and to offer pro bono services upon entering the workforce. Over the past few years, the School of Biological Sciences has provided a good research foundation through the various laboratory stints. Thus, when presented with the opportunity to take up IIP to gain much-needed exposure to the healthcare workforce, I jumped at it. There is no specific healthcare degree currently that one can pursue, hence I felt that taking up a healthcare-related internship would give an edge when looking for future jobs in this sector.

Q2: What does your job scope entail?  
I’m currently an intern with Deloitte Business Innovations, Future Healthcare. The job scope so far has been varied and it taps into my different skillsets. I have been researching healthcare in emerging countries, and have contributed to the write-up for a thought leadership. We also get to attend internal and externally organized events, including Deloitte workshops, healthcare and start-up events, and external healthcare events. All these are essential to increasing my exposure to the field. I was also on the organizing committee for Deloitte’s Chinese New Year and Corporate Social Responsibility event. As an intern, I was part of client engagements with the future healthcare team and our responsibilities differ depending on what the client requires of us. As I become more independent, I look forward to tasks and projects that involve liaising and conducting interviews with collaborators and players in the healthcare industry.

**Kheng Yik Ming (right)**  
*Class of 2016  
Tan Tock Seng Hospital  
Duration: 22 Weeks*

Q1: Why did you choose to do an internship instead of FYP?  
Personally, I felt that doing an internship was more in line with my career plan, as I wish to become an entrepreneur in the future. It will challenge me and offer more exposure to the working world when compared to a FYP. After the well-rounded training and education in the School of Biological Sciences, an internship was what I needed to make a change and prepare me for the next phase of life.

Q2: Please share with us your job scope.  
I was attached to the Operations (Medicine) Department at Tan Tock Seng Hospital, which facilitates the holistic implementation of clinical projects within the hospital. After liaising with clinical doctors, senior management or frontline staff for inputs, I am tasked to ensure their seamless integration into hospital policies and protocols. I am very fortunate to be able to run a diverse range of projects from initiatives aimed at improving patient care to MOH-conducted exercises to test the hospital’s readiness to handle civil emergency situations. Apart from these, I am also involved in a job redesign project for the frontline staff and up-skilling them for career progression.

Q3: What are some interesting encounters you gained at your internship?  
The internship helps us achieve our potential. From the first day, there were no idle moments. I remember being all jittery and nerve wracked when we were asked to research a field of healthcare, to come up with a scope and to pitch that idea to our team’s director. When the idea was finally accepted after several rounds of pitching, the challenge was upped when I had to pitch the idea to our department’s director. My confidence grew from this experience, as I imagine this is what it will be like in a work environment. You have to impress your boss in that 5–10 minutes of time that he/she spares you out of his/her hectic work schedule.

Q4: Any advice for current undergraduates?  
Be bold and challenge yourself to new opportunities, hackathons, internships or whatnot. Armed with your transferable skills there will definitely be open doors in various career industries, if you look for them.

**Q3. What are some interesting encounters you gained at your internship?**

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Kheng Yik Ming (right)  
*Class of 2016  
Tan Tock Seng Hospital  
Duration: 22 Weeks*
Student Life

Faculty-Student Mentorship
This mentoring scheme establishes a rapport and encourages interaction between faculty and students. Students are able to obtain academic support, career advice and help students adapt to undergraduate life.

Career Advice Office
We have a dedicated team of faculty which is committed to help and provide skills training to achieve a student’s career goal. The office also provides information on internship opportunities, job openings and employment trends.

School of Biological Sciences
Student’s Club (BS Club)
The student-run Biological Sciences Student’s Club is an active unit of the school. They organise numerous events throughout the year, such as Freshman Orientation, College of Science Day, Dinner & Dance, Halloween Night and Sports Events.

Alumni-Student Engagement
Alumni are invited back to SBS to share their experience with undergraduates.

Peer-Tutoring
The peer-tutoring scheme helps junior students learn in a comfortable, friendly peer situation. Juniors are able to consult their seniors to clear any doubts on their schoolwork.

Career Professional Development
Our year 3 and year 4 students attend Career Professional Development workshops to equip them with essential knowledge, job search techniques and collaterals in order to attain gainful employment.
"I was hoping to gain more from my undergraduate experience as I found that I coped well with biological sciences in my first year. Food science also sounds interesting to me, as it brings something abstract like chemical and biological interactions within the body down to observable phenomena like taste and fragrance which anyone can grasp.

I think the beauty of the programme is that the main curriculum of food science is conducted within our second and third year in school. This gives us the freshman year to adapt to school work and life and the last year to find jobs or pursue something we like.

The Food Science second major is conducted in partnership with Wageningen University (WUR) which is the only university in the Netherlands focused on food and the living environment.

It is interesting that WUR conducts their lab as a full time, intensive laboratory session as opposed to the three hour per week style that we have in NTU. As such, there is more ownership and flexibility as we get to plan when to conduct the experiments. Not being constrained by the logistical nightmare of a huge class, we get to do rather personalized experiments, such as bringing our own food for testing and assessing the sanitary condition of several lunching hotspots in NTU.

On top of covering the syllabus, Wageningen lecturers enjoy answering some trivia of everyday life that we get curious about. For example, the softening of cookies when they are left in the air and how to cook Japanese spring eggs. The small class size also allows the lecturers to know us personally and as such I hardly hesitate to send them emails to ask for help on the curriculum or even discuss interesting observations I have made in my biological sciences experiment. All in all, they have really helped build my interest in food science.

My visit to Netherlands in Year 3 was really an eye opener since I have never been to Europe, let alone go there to conduct experiments. The Dutch have a very relaxed lab culture and place more emphasis on enjoying the discovery process than just results. The industrial visits also helped to put theory and charts into perspective and let us understand certain decisions and constraints companies make and face. The diverse types of companies we visited also allowed me to see the impact of my studies on many types of industries including flavor and fragrances, supply chain, food processing, nutrition, nutrigenomics and many more. And more important to note; this where we can contribute in the future."
I chose to take on a second major in psychology after the experience I gained during my internship following A-level. I was a Youth for Autism intern at Eden School. Previously I had already taken an interest in the special needs community. The opportunity to interact with them on a personal level further deepened my passion to want to work with and empower this group of people. At the same time, I also considered going into the medical field as I held a keen interest in the human body, hence I felt that this double major program allowed me to take on the best of both worlds.

Personally I love to travel and when opportunities to study overseas arose, I gladly took them up. I chose to go for my semester exchange in Finland to the University of Helsinki, as the education system of the Nordic countries have always been praised. Hence I wanted to experience it. I had the opportunity to take up interesting psychology modules such as music psychology, as well as pick up some Finnish!
Remain connected to our growing Alumni and benefit from the knowledge and expertise of this valuable network. More importantly, contribute to develop the next generation of our School.

Zeng Renchun  
President, School of Biological Sciences Alumni Association
What can you Learn?

The study of biology is highly relevant to everyday life. At some point, we discovered that we are fascinated by living systems. As the knowledge base in the biological sciences grows exponentially and technology become ever more sophisticated, the ability to think broadly about biology and to apply your knowledge across boundaries of disciplines will inevitably become a very valuable and powerful asset both in the scientific environment and many walks of life. This programme will prepare you for a variety of careers where you can make a difference in the world. Our mission is to enable you to reach your potential while celebrating the study of life. The curriculum covers specialized and advanced topics in stem cells, Cancer Biology and therapy, physiology, evolutionary biology, neurosciences, among others. In the final year, students can choose to do a final year research project or internship with renowned research institutions and organizations.

ABOUT THE COURSE

The study of biology is highly relevant to everyday life. At some point, we discovered that we are fascinated by living systems. As the knowledge base in the biological sciences grows exponentially and technology become ever more sophisticated, the ability to think broadly about biology and to apply your knowledge across boundaries of disciplines will inevitably become a very valuable and powerful asset both in the scientific environment and many walks of life. This programme will prepare you for a variety of careers where you can make a difference in the world. Our mission is to enable you to reach your potential while celebrating the study of life. The curriculum covers specialized and advanced topics in stem cells, Cancer Biology and therapy, physiology, evolutionary biology, neurosciences, among others. In the final year, students can choose to do a final year research project or internship with renowned research institutions and organizations.

FURTHER STUDIES

- Ross University, Doctor of Veterinary Medicine
- Warwick University
  - NTU Joint PhD Program in Neuroscience
- University of Konstanz
  - NTU Joint PhD Program in Chemical Biology
- Karolinska Institute
  - NTU Joint PhD Program in Biomedical Sciences
- A*STAR
  - SglN-NTU Immunology PhD Program
- NTU
  - Interdisciplinary Graduate School
- NTU, School of Biological Sciences
  - Masters & PhD Program

YEAR 1

- Introductory Biology
- Biophysical Chemistry
- Organic Chemistry
- Biochemistry I
- Principles of Genetics
- Molecular & Cell Biology I
- Absolute Basics for Career
- Introduction to Sustainability: Multidisciplinary Approaches & Solutions
- Biostatistics
- Molecular and Cell Biology Techniques Level 1

YEAR 2

- Physiology
- Microbiology
- Biochemistry II
- Experimental Molecular & Cell Biology
- Scientific Communication I & II
- Ethics & Moral Reasoning
- Immunology
- Advanced Biochemistry
- Bioimaging
- Genetics & Genomics
- Equations of Life
- Molecular & Cell Biology II
- Undergraduate Advance Experimental Biology (UAEB) Workshop
- Microbial Biotechnology
- Ecology
- RNA Structures & RNA Based Drug Development

Select three of these options:
YEAR 3 & 4

- Biology & Society
- Career Power Up
- Entrepreneurship & Innovation

Select seven of these options:
- TCM Diagnostics
- Neurobiology
- Developmental Biology
- Cancer Biology and Therapy
- Advanced Molecular Genetics
- Plant Biology
- Bioimaging Techniques in EM
- Physiological Systems: Animal models for Drug Development
- Current Topics in Cell Biology
- Plant Biotechnology
- Regulatory control of Healthcare Products & Medical Devices
- Molecular Basis of Diseases
- Current Topics in Immunology
- Virology
- Biology of Aging
- Synthetic Biology
- Biology of Social Behaviour
- Research Experience
- History of Animals
- Biotechnology & Society
- Undergraduate Advanced Experimental Biology (UAEB) Workshop
- Mathematics and Physics Topics for Structural Biologist
- Protein Trafficking
- Chemical Biology
- Biotechnology & Society
- Undergraduate Advanced Experimental Biology (UAEB) Workshop
- Protein Folding & Biomolecular NMR
- Functional Genomics and Proteomics
- Drug Discovery & Developmental Biotechnology
- Biological Foundations of Behaviour
- The RNA World
- Advanced Microbic Pathogenesis
- Neuropsychology of Stress & Resilience

Select four of these options:
- Professional Career Development
- Final Year Project or Professional Internship Programme in Year 4/ Semester 2
- Protein Trafficking
- Chemical Biology
- Biotechnology & Society
- Undergraduate Advanced Experimental Biology (UAEB) Workshop

This is a broad overview without Prescribed Electives and Unrestricted Electives. Kindly refer to Page 31 for detailed information.

# Conducted during the 1-week term break or semester vacation (See page 31)
^ Constitutes 6AUs and not the usual 3AUs.
Our Undergraduate Advance Experimental Biology (UAEB) programme provides an exciting taste of hands-on research. It is a unique opportunity to experience what research encompasses and to advance your skillsets in specific areas of biology. The typical one-week intensive, small class workshops, held during vacation breaks are very much sought after by students.

3 ACADEMIC UNITS (AUs)
are awarded for each UAEB course for effective professor-student engagement

12 UAEB ACROSS-DISCIPLINES
- Applied Immunology
- Methods in Histology
- Neurobiology
- Proteomics
- DNA engineering for fluorescent in-situ hybridisation (FISH)
- Protein behavior in health and disease – biophysics tools
- Effect of anti-mitotic drugs on cancer cells
- Science of aging and life extension in C. elegans
- Role of Actin Cytoskeleton Regulators in Metastasis
- Genetics of Human Diseases
- Microbial Biotechnology and Systems Biology
- Bridges between Neuroscience and Psychology

3 GREAT REASONS
WHY STUDENTS CAN’T WAIT TO SIGN UP FOR UAEB
1. Get first-hand experience of what it is like to work as a researcher and hone lab skills for a future career
2. Take existing interests to new depths by engaging with the very latest advances—often beyond what is covered in the course
3. Develop new ideas and skills that you can draw from assisted research projects as well as for future study

UAEB gave me the opportunity to work as a researcher. I had the freedom to explore and try new things for my experiment with the guidance from our professor. I gained a better understanding of research and appreciation for all the hard work and sleepless nights researchers went through to attain their results.

Mervyn Ong
Year 3, Biological Sciences
BIOLOGICAL SCIENCES WITH SECOND MAJOR IN BIOMEDICAL STRUCTURAL BIOLOGY

- First in Singapore to offer this unique programme in 2015, students will be cross-trained in biology and structural biology, including medicinal chemistry and biotechnological aspects
- Conducted in partnership with Lee Kong Chian School of Medicine, the Division of Chemistry and Biological Chemistry and School of Physical and Mathematical Sciences

ABOUT THE COURSE
Structural biology has gained importance in the biomedical field, with an increasing impact on healthcare and medicine. Areas include structure-based discovery, structure-based vaccine design, structure-based design of biologics, structure-based design of novel biomaterials and structure-based design of protein engineering.

On top of the Biological Sciences course requirements, students will be required to learn:
- Basic Organic Chemistry with Laboratory
- Basic Physical Chemistry with Laboratory
- Organic & Bioorganic Chemistry
- Physical and Biophysical Chemistry I
- Mathematics and Physics Topics for Structural Biologists
- NMR in Structural Biology
- Bioimaging Techniques in EM
- RNA Structured & RNA Based Drug Development

Select 4 from the following:
- Natural Product Chemistry
- Advanced Bioorganic Chemistry
- Medicinal Chemistry
- Drug Design and Synthesis
- Molecular Modelling: Principle and Applications
- Macromolecular X-ray Crystallography with Laboratory
- Physiological Systems: Animal Models for Drug Development
- Fragment Based Drug Discovery
- Spectroscopic Methods and Application

CAREERS
Graduates of this programme have enhanced working opportunities to work in pharmaceutical and biotechnology companies in the research and development of areas such as drug discovery, protein engineering and vaccine design.
BIOLOGICAL SCIENCES
WITH SECOND MAJOR IN
BIOMEDICAL MATERIALS

• First in Singapore to offer this interdisciplinary programme, providing a comprehensive background in the biological science and engineering of biomedical materials for regenerative medicine, tissue engineering, drug delivery, among others
• Conducted in partnership with School of Materials Science and Engineering, NTU

ABOUT THE COURSE
Biomaterials science is a rapidly growing field. Biomedical materials have an enormous impact on healthcare throughout the world, and they will continue to be important in advancing patient care and in the medical industry. With the emergence of tissue engineering and regenerative medicine, it also means increasing opportunities for young scientists to work on new clinical treatments for injury and diseases. Students of this interdisciplinary programme will undergo training in biological sciences and biomedical materials areas such as immunology, physiology, advanced biomaterials and nanomaterials.

On top of the Biological Sciences course requirements, students will be required to learn:
• Materials Chemistry II
• Materials Science
• Thermodynamics of Materials
• Phase Transformation and Kinetics
• Metallic & Ceramic Materials
• Biomaterials
• Nanomaterials: Fundamentals and Application
• Advanced Biomaterials

Select 3 of these electives:
• Materials Physics
• Polymer and Composites
• Mechanical Behaviour of Materials
• Analysis of Materials
• Biomedical Devices
• Drug Delivery and Tissue Engineering

CAREERS
Equipped with the knowledge and skillset of the programme, graduates can look forward to a Research and Development career in emerging areas such as regenerative medicine and tissue engineering, as well as in pharmaceutical industries.
BIOLOGICAL SCIENCES WITH SECOND MAJOR IN CHEMICAL BIOLOGY

Graduates are sought by pharmaceutical and biotechnology companies due to the added edge of interdisciplinary knowledge.

Combining with the biological sciences programme and in partnership with the Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, enrolled students will be cross-trained in biological sciences and chemistry building a relevant foundation to embark on research and development in the area of chemical biology.

ABOUT THE COURSE

Aside from the Biological Sciences course requirements, students will be required to learn:

• Basic Inorganic Chemistry with Laboratory
• Basic Organic Chemistry with Laboratory
• Basic Physical Chemistry with Laboratory
• Organic & Bioorganic Chemistry
• Physical & Biophysical Chemistry I
• Organic Reaction Mechanisms and Synthesis
• Chemical Biology

Select 5 of these electives:

• Chemistry and Biological Chemistry Laboratory 1 / 2 / 3 / 4
• Chemical Spectroscopy and Applications
• Asymmetric Synthesis
• Current Topics in Synthetic Organic Chemistry
• Natural Product Chemistry
• Advanced Bioorganic Chemistry
• Medicinal Chemistry
• Food Chemistry & Nutrition
• Physical and Biophysical Chemistry 2
• Molecular Modeling: Principle and Applications
• Analytical and Bioanalytical Chemistry
• Metal Mediated Reactions
• Drug Design and Synthesis

CAREERS

Graduates are sought by pharmaceutical and biotechnology companies due to the added edge of interdisciplinary knowledge.
BIOLOGICAL SCIENCES WITH SECOND MAJOR IN FOOD SCIENCE & TECHNOLOGY (NANYANG SCHOLARSHIP PROGRAMME)

Students with an interest in biology and wish to gain further understanding about food processes with an engineering and industrial point of view.

Graduates have better career opportunities in food related industries and government agencies, such as food processing, food safety and packaging.

ABOUT THE COURSE
Students with an interest in biology and wish to gain further understanding about food processes with an engineering and industrial point of view.

Aside from the Biological Sciences course requirements, students will be required to learn:

- Food Microbiology
- Food Chemistry
- Food Physics
- Food Process Engineering
- Quality Systems Operations

Select 5 of these electives:

- Biomedical Nanotechnology
- Bioseparations
- Bioanalytical Techniques
- Pharmacokinetics & Biopharmaceutics
- Food Analysis (with Laboratory)
- Food standards in Food Production and Trade
- Current Topics in Analytical Chemistry
- Plant Biology (with laboratory)
- Functional Genomics and Proteomics

The curriculum in SBS is comprehensive and enriching. The lessons are interactive and cover a broad field of specialization in the world of biology. The laboratory sessions are especially enthralling and educative, which equips us with the knowledge and skills to prepare for the future.

Zeng Hui
Year 2, Biological Sciences
President of the 14th Biological Sciences Club

CAREERS
Graduates have better career opportunities in food related industries and government agencies, such as food processing, food safety and packaging.
DOUBLE DEGREE IN BIOMEDICAL SCIENCES & CHINESE MEDICINE

This innovative ‘East meets West’ programme trains students in biomedical research and Chinese medicine.

This 5-year programme consists of the first three years in NTU with the last two years in Beijing University of Chinese Medicine, China.

ABOUT THE COURSE

This is a bilingual course with English and Mandarin as the languages of instruction. Students will learn aspects of Biomedical Sciences such as Genetics, Molecular & Cell Biology, Immunology as well as Traditional Chinese Medicine Diagnostics, Acupuncture and Moxibustion.

WHAT YOU WILL LEARN

YEAR 1
- Introductory Biology
- Organic Chemistry
- TCM in Ancient Chinese
- Anatomy
- Biochemistry I
- Principles of Genetics
- Molecular & Cell Biology I
- Molecular & Cell Biology Techniques Level 1
- Biostatistics
- Basics of TCM
- Biology and Society
- Scientific Communication
- Absolute Basics for Career
- Introduction to Sustainability: Multidisciplinary Approaches & Solution

YEAR 2
- Physiology
- Microbiology
- Chinese Materia Medica
- TCM Diagnostics
- Emperor’s Canon of Internal Medicine
- TCM Formulary
- Pathology
- TCM Internship
- Ethics & Moral Reasoning
- Scientific Communion I

YEAR 3
- Plant Biology
- Treatise on Exogenous Febrile Diseases
- Acupuncture & Moxibustion
- Immunology
- Biomedical Pharmacology
- Synopsis of the Golden Chamber
- Seasonal Febrile Diseases
- TCM Internship II & III
- Entrepreneurship & Innovation
- Inter-semester – Final Year Project

YEAR 4 at Beijing University of Chinese Medicine (BUCM), China
- Basics of Diagnostics
- Internal Medicine of TCM
- Orthopaedics, Traumathology of TCM
- Ophthalmology of TCM
- Otolaryngology of TCM
- Selected Literature in TCM
- Modern Internal Medicine
- Gynaecology of TCM
- External Medicine of TCM
- Paediatrics of TCM
- Dermatology of TCM
- TCM Tui-Na

YEAR 5 at Beijing University of Chinese Medicine (BUCM), China
- Neurobiology
- Developmental Biology
- Cancer Biology & Therapy
- Advanced Molecular Genetics
- Bioimaging Techniques in EM
- Regulatory Control of Healthcare Products & Medical Devices
- Virology
- Biology of Aging
- Synthetic Biology
- Research Experience
- UAEB Workshop (See page 22)

CAREERS

Graduates with a Double Degree in Biomedical Sciences & Chinese Medicine are well positioned to consider careers in both life sciences/biomedical sciences and the Chinese Medicine industry. The majority are employed as Chinese Medicine physicians (subject to passing the Singapore Chinese Medicine Practitioners’ Board Exam) as well as management & administration positions in healthcare organizations and clinics, just to name a few. Some of our graduates are currently pursuing higher degrees (Masters) in Chinese Medicine or research as PhD students at local universities.
### General NTU entry requirements and

<table>
<thead>
<tr>
<th>Degree</th>
<th>Required Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.Sc (Hons) in Biological Sciences</td>
<td>H1 Level pass in Mathematics</td>
</tr>
<tr>
<td>B.Sc. (Hons) in Biological Sciences with Second Major in Biomedical Structural Biology</td>
<td>H1 Level pass in Mathematics, H2 Level pass in Physics / Chemistry / Biology</td>
</tr>
<tr>
<td>B.Sc. (Hons) in Biological Sciences with Second Major in Chemical Biology</td>
<td>H1 Level pass in Mathematics, H2 Level pass in Chemistry</td>
</tr>
<tr>
<td>B.Sc. (Hons) in Biological Sciences with Second Major in Food Science &amp; Technology</td>
<td>H1 Level pass in Mathematics, H2 Level pass in Chemistry, H2 Level pass in Physics / Biology is compulsory for those who have not read H2 Level Mathematics</td>
</tr>
<tr>
<td>B.Sc. (Hons) in Biological Sciences with Second Major in Food Science &amp; Technology</td>
<td>H1 Level pass in Mathematics, H2 Level pass in Chemistry/Biology</td>
</tr>
<tr>
<td>B.Sc. (Hons) in Biological Sciences with Biomedical Materials</td>
<td>H1 Level pass in Mathematics, H2 Level pass in Chemistry/Biology</td>
</tr>
</tbody>
</table>

Besides academic performance, applicants with exceptional talents and/or outstanding achievements beyond schools’ co-curricular activities can be considered for admission to NTU under the ‘Non-academic Achievements (NAA)/Discretionary Criteria (DC)’ scheme: [http://www3.ntu.edu.sg/oad2/website_files/NAA.pdf](http://www3.ntu.edu.sg/oad2/website_files/NAA.pdf)

### Exemptions

<table>
<thead>
<tr>
<th>A Level Subject</th>
<th>Exemptions</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2 Biology</td>
<td>BS1001 Introductory Biology</td>
<td>Grade A</td>
</tr>
<tr>
<td>H2 Chemistry</td>
<td>BS1003 Organic Chemistry</td>
<td>Grade A</td>
</tr>
<tr>
<td>H3 Molecular Biology</td>
<td>BS1007 Molecular &amp; Cell Biology I</td>
<td>Distinction or Merit</td>
</tr>
<tr>
<td>H3 Organic Synthesis &amp; Mechanism</td>
<td>BS1003 Organic Chemistry</td>
<td>Distinction or Merit</td>
</tr>
<tr>
<td>H3 Proteomics</td>
<td>BS1005 Biochemistry</td>
<td>Distinction or Merit</td>
</tr>
<tr>
<td>Other H3 Subjects</td>
<td>Exemption will be granted on a case-by-case basis</td>
<td>Distinction or Merit</td>
</tr>
</tbody>
</table>

**NEW UPDATE!**

**LOCAL POLYTECHNIC DIPLOMA HOLDERS**

Please visit this link for a complete list of eligible diplomas: [http://www.ntu.edu.sg/url/polydiploma.html](http://www.ntu.edu.sg/url/polydiploma.html)

**INDICATIVE GRADE PROFILE FOR A ‘LEVEL’ AND POLYTECHNIC STUDENTS**

<table>
<thead>
<tr>
<th>Biological Sciences</th>
<th>A Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Percentile</td>
<td>ABC/C</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>AAA/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Biological Sciences</th>
<th>Polytechnics</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Percentile</td>
<td>3.68</td>
</tr>
<tr>
<td>90th Percentile</td>
<td>3.95</td>
</tr>
</tbody>
</table>

These provide an indication of the grade profiles for most of the applicants admitted in AY2016 and are to be used as a guide only.
Scholarship

NTU offers a wide range of scholarship to students pursuing full-time undergraduate studies. Awarded based on academic merit and exceptional co-curricular records.

Some of the scholarships include:
• Nanyang Scholarship
• College Scholarship

Find out more at www.ntu.edu.sg/admissions

Note: For scholars undergoing the Double Degree Programme in Biomedical Sciences & Chinese Medicine, the scholarship will cover only the first three years of study in NTU.
## Curriculum Structure

### B.Sc in Biological Sciences (Hons)

<table>
<thead>
<tr>
<th>COURSE TYPE</th>
<th>AU</th>
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</thead>
<tbody>
<tr>
<td>Core</td>
<td>36</td>
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<tr>
<td>Major Prescribed Elective (Major PE)</td>
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<tr>
<td><strong>General Education Requirement (GER)</strong></td>
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</tr>
<tr>
<td>Core</td>
<td>12</td>
</tr>
<tr>
<td>Prescribed Elective (PE)</td>
<td></td>
</tr>
<tr>
<td>Business &amp; Management (BM)</td>
<td>3</td>
</tr>
<tr>
<td>Liberal Arts (LA)</td>
<td>3</td>
</tr>
<tr>
<td>Science, Technology &amp; Society (STS)</td>
<td>3</td>
</tr>
<tr>
<td>Any Category (BM, LA or STS)</td>
<td>6</td>
</tr>
<tr>
<td>Unrestricted Elective (UE)</td>
<td>15</td>
</tr>
<tr>
<td>Total AUs</td>
<td>132</td>
</tr>
</tbody>
</table>

**Core courses:** Compulsory courses in order to fulfill your degree requirements. In the first semester of your first year, your Core courses will be pre-registered for you. To register for more GER-PE and/or UE, students may do so during the add/drop period.

**Prescribed Electives:** You are expected to fulfill the required number of AUs as indicated in your degree audit. You are free to select from a list of available Prescribed Electives as long as you fulfill the pre-requisite (if applicable).

**Unrestricted Electives:** You are expected to fulfill the required number of AUs as indicated in your degree audit. You are free to select from a list of available Unrestricted Electives offered from other schools as long as you fulfill the pre-requisite (if applicable).

### YEAR 1

#### SEMESTER 1

<table>
<thead>
<tr>
<th>COURSE TYPE</th>
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</thead>
<tbody>
<tr>
<td>Core</td>
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</tr>
<tr>
<td>BS1001 Introductory Biology</td>
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</tr>
<tr>
<td>BS1002 Biophysical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BS1003 Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BS1005 Biochemistry I</td>
<td>3</td>
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<tr>
<td>GER-PE-LA &amp; GER-UE</td>
<td>6</td>
</tr>
<tr>
<td>ML0001 Absolute Basics for Career</td>
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<tr>
<td><strong>Total AUs</strong></td>
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#### SEMESTER 2

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<tbody>
<tr>
<td>Core</td>
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<tr>
<td>BS1006 Principles of Genetics</td>
<td>3</td>
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<tr>
<td>BS1007 Molecular &amp; Cell Biology I</td>
<td>3</td>
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<tr>
<td>BS1008 Biostatistics</td>
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<tr>
<td>BS1100 Molecular &amp; Cell Biology Techniques Level 1</td>
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<tr>
<td>GC0001 Introduction to Sustainability: Multidisciplinary Approaches and Solutions</td>
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<tr>
<td><strong>Total AUs</strong></td>
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### YEAR 2

#### SEMESTER 1

<table>
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<tr>
<th>COURSE TYPE</th>
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<tbody>
<tr>
<td>Core</td>
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<tr>
<td>BS2001 Physiology</td>
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<td>BS2002 Microbiology</td>
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<tr>
<td>BS2003 Biochemistry II</td>
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<tr>
<td>GER-PE</td>
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<tr>
<td>GER-UE</td>
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<tr>
<td><strong>Total AUs</strong></td>
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#### SEMESTER 2

<table>
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<tr>
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<tr>
<td>BS2008 Experimental Molecular &amp; Cell Biology</td>
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<tr>
<td>Major PE</td>
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<td>GER-PE</td>
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<tr>
<td>GER-UE</td>
<td>3</td>
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<td><strong>Total AUs</strong></td>
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### YEAR 3

#### SEMESTER 1

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<tr>
<td>GER-PE</td>
<td>3</td>
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<tr>
<td>GER-Core BS0001 Biology &amp; Society</td>
<td>3</td>
</tr>
<tr>
<td>GER-Core ML0002 Career Power Up</td>
<td>1</td>
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<tr>
<td><strong>Total AUs</strong></td>
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#### SEMESTER 2

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<tbody>
<tr>
<td>Major PE</td>
<td>12</td>
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<tr>
<td>GER-PE</td>
<td>3</td>
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<tr>
<td>GER-Core ET0001 Entrepreneurship and Innovation</td>
<td>1</td>
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<tr>
<td><strong>Total AUs</strong></td>
<td>16</td>
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### YEAR 4

#### SEMESTER 1

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<tbody>
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<td>Major PE</td>
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<tr>
<td>GER-UE</td>
<td>3</td>
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<tr>
<td><strong>Total AUs</strong></td>
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</table>

#### SEMESTER 2

<table>
<thead>
<tr>
<th>COURSE TYPE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Major PE</td>
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</tr>
<tr>
<td>BS4020 Final Year Project</td>
<td>1</td>
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<tr>
<td><strong>Total AUs</strong></td>
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</tr>
</tbody>
</table>

Note: Curriculum is based on the school's recommendation for BS 4-Year Programme.

“Students are recommended to read BS4223 in Year 3 Sem 1, Year 3 Sem 2 or Year 4 Sem 1 before going on Professional Internship. “ML0002 Career Power Up!” is the co-requisite of BS4223.
### MAJOR PRESCRIBED ELECTIVES

<table>
<thead>
<tr>
<th>TABLE A</th>
<th>AU</th>
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<tbody>
<tr>
<td>BS2004</td>
<td>Molecular &amp; Cell Biology II</td>
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<tr>
<td>BS2007</td>
<td>Immunology</td>
</tr>
<tr>
<td>BS2014</td>
<td>Microbial Biotechnology</td>
</tr>
<tr>
<td>BS2010</td>
<td>Bioimaging</td>
</tr>
<tr>
<td>BS2012</td>
<td>Genetics and Genomics</td>
</tr>
<tr>
<td>BS2021</td>
<td>RNA Structures and RNA Based Drug Development</td>
</tr>
<tr>
<td>BS211S</td>
<td>Equations of Life</td>
</tr>
<tr>
<td>UAEB*B</td>
<td>Undergraduate Advanced Experimental Biology Workshop</td>
</tr>
<tr>
<td>AAB20D</td>
<td>Ecology</td>
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</table>

<table>
<thead>
<tr>
<th>TABLE B</th>
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<tbody>
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<td>BS3004</td>
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<td>BS3005</td>
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<td>Computational Biology &amp; Modelling</td>
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<td>Current Topics in Stem Cell and Developmental Biology</td>
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<td>Protein Folding &amp; Biomolecular NMR</td>
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<td>BS3012</td>
<td>Functional Genomics and Proteomics</td>
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<td>Drug discovery &amp; Development, Biotechnology</td>
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<td>BS3014</td>
<td>Biological Foundations of Behavior</td>
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</table>

* Major PE which is conducted during the 1-week term break or semester vacation.

** BS1101 and BS2103 are considered as ONE Major PE.
B.Sc in Biological Sciences with Second Major in Biomedical Structural Biology

Course structure for Biological Sciences with Second Major in Biomedical Structural Biology

<table>
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<tr>
<th>BIOLOGICAL SCIENCES REQUIREMENTS</th>
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<td>Core Courses</td>
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<td>Prescribed Electives</td>
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Total AUs 149

Biomedical Structural Biology Major Structure

8 COMPULSORY COURSES (26 AUS)

- CM1031 Basic Organic Chemistry with Laboratory
- CM1041 Basic Physical Chemistry with Laboratory
- BS2020 Mathematics and Physics Topics for Structural Biologists
- CM2031 Organic and Bioorganic Chemistry
- CM2041 Physical and Biophysical Chemistry I
- BS2021 RNA Structures & RNA Based Drug Development
- BS3021 Bioimaging Techniques in EM
- BS3025 NMR in Structural Biology

3 PRESCRIBED ELECTIVES (9 AUS)

- CM4034 Natural Product Chemistry and Drug Discovery
- CM9082 Drug Design and Synthesis
- BS3026* Fragment Based Drug Discovery
- BS3027* Spectroscopic Methods and Application
- BS3344* Undergraduate Advanced Experimental Biology (UAEJ) Workshop (Series I) - Macromolecular X-ray Crystallography
- CM4051 Advanced Bioorganic Chemistry
- CM9081 Medicinal Chemistry
- CM4043 Molecular Modeling: Principle and Applications
- BS4013 Physiological Systems: Animal Models for Drug Development

*Courses will be offered w.e.f. AY17/18 Semester 1 onwards.

B.Sc. in Biological Sciences with Second Major in Biomedical Materials

Course structure for Biological Sciences with Second Major in Biomedical Materials

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<td>Core Courses</td>
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<tr>
<td>Prescribed Electives</td>
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Total AUs 147

Biomedical Materials Major Structure

8 COMPULSORY COURSES (24 AUS)

- MS1015 Material Science
- MS1014 Materials Chemistry II
- MS1016 Thermodynamics of Materials
- MS2016 Phase Transformation and Kinetics
- MS3011 Metallic & Ceramic Materials
- MS4013 Biomaterials
- MS4014 Nanomaterials: fundamentals and applications
- MS4610 Advanced biomaterials

3 PRESCRIBED ELECTIVES (9 AUS)

- MS1012 Material Physics
- MS2013 Polymer and composites
- MS2015 Mechanical Behaviour of Materials
- MS3014 Analysis of Materials
- MS4611 Biomedical Device
- MS4612 Drug Delivery and Tissue Engineering
### B.Sc. in Biological Sciences with Second Major in Chemical Biology

#### Course structure for Biological Sciences with Chemical Biology Major

<table>
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#### CHEMICAL BIOLOGY MAJOR REQUIREMENTS

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#### Chemical Biology Major Structure

**6 COMPULSORY COURSES (21 AUS)**
- CM1021 Basic Inorganic Chemistry with Laboratory
- CM1031 Basic Organic Chemistry with Laboratory
- CM1041 Basic Physical Chemistry with Laboratory
- CM2031 Organic and Bioorganic Chemistry
- CM2041 Physical and Biophysical Chemistry I
- CM3031 Organic Reaction Mechanisms and Synthesis

**5 PRESCRIBED ELECTIVES (15 AUS)**
- CM2061 Chemistry and Biological Chemistry Laboratory (1)
- CM3011 Chemical Spectroscopy and Applications
- CM3062 Chemistry and Biological Chemistry Laboratory (4)
- CM4031 Asymmetric Synthesis
- CM4032 Current Topics in Synthetic Organic Chemistry
- CM4034 Natural Product Chemistry
- CM4051 Advanced Bioorganic Chemistry
- CM5081 Medicinal Chemistry
- CM9101 Food Chemistry and Nutrition
- CM9301 Physical and Biophysical Chemistry 2
- CM4043 Molecular Modeling: Principle and Applications
- CM2011 Analytical and Bioanalytical Chemistry
- CM2062 Chemistry and Biological Chemistry Laboratory (2)
- CM3061 Chemistry and Biological Chemistry Laboratory (3)
- CM4032 Current Topics in Synthetic Organic Chemistry
- CM4033 Metal Mediated Reactions
- CM9082 Drug Design and Synthesis

### B.Sc. (Hons) in Biological Sciences with Second Major in Food Science and Technology (Nanyang Scholarship Programme)

#### Course structure for Biological Sciences with Food Science and Technology Major

<table>
<thead>
<tr>
<th>BIOLOGICAL SCIENCES REQUIREMENTS</th>
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<tbody>
<tr>
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#### FOOD SCIENCE AND TECHNOLOGY MAJOR REQUIREMENTS

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<tbody>
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<td>147</td>
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</table>

#### Food Science and Technology Major Structure

**5 COMPULSORY COURSES CONDUCTED BY WAGENINGEN UNIVERSITY, COORDINATED BY NTU (18AUs)**
- CH9200 Food Microbiology Coordinated at SBS
- CH9201 Food Chemistry Coordinated at SPMS
- CH9202 Food Physics Coordinated at SPMS
- CH9203 Food Process Engineering Coordinated at SCBE
- CH9204 Quality Systems Operations Coordinated at SCBE

**5 PRESCRIBED ELECTIVES FROM NTU (15 AUs)**
Choose 5 courses from the following list
- BG4215 Biomedical Nanotechnology
- CH4303 Bioseparations
- CH4306 Bioanalytical Techniques
- CH4213 Pharmacokinetics & Biopharmaceutics
- CM9102 Food Analysis (with laboratory)
- CH9220 Food Standards in Food Production and Trade
- CM4013 Current Topics in Analytical Chemistry
- BS3018 Plant Biology (with laboratory)
- BS3012 Functional Genomics and Proteomics
## B.Sc. in Biomedical Sciences & B.Med. in Chinese Medicine

### COURSE TYPE | AU
--- | ---
Core | 114
Major Prescribed Elective (Major PE) | 18
General Education Requirement (GER) | 10
Prescribed Elective (PE) | 3
Business & Management (BM) | 3
Unrestricted Elective (UE) | 3

**Total AUs:** 148

**Core courses:** Compulsory courses in order to fulfill your degree requirements. In the first semester of your first year, your Core courses will be pre-registered for you. To register for more GER-PE and/or UE, students may do so during the add/drop period.

**Prescribed Electives:** You are expected to fulfill the required number of AUs as indicated in your degree audit. You are free to select from a list of available Prescribed Electives as long as you fulfill the pre-requisite (if applicable).

**Unrestricted Electives:** You are expected to fulfill the required number of AUs as indicated in your degree audit. You are free to select from a list of available Unrestricted Electives as long as you fulfill the pre-requisite (if applicable).

### YEAR 1

#### SEMESTER 1

- **Core**
  - BS1001 Introductory Biology 3
  - BS1003 Organic Chemistry 3
  - BS1005 Biochemistry I 3
  - BS1101 Basics of TCM 6
  - BS2101 Anatomy 4
- **GER-Core**
  - BS0001 Biology & Society 3
  - ML0001 Absolute Basics for Career 1

**Total AUs:** 23

#### SEMESTER 2

- **Core**
  - BS1006 Principles of Genetics 3
  - BS1007 Molecular & Cell Biology I 3
  - BS1008 Biostatistics 3
  - BS1100 Molecular & Cell Biology Techniques Level 1 3
  - BS1102 TCM in Ancient Chinese 6
- **GER-Core**
  - GC0001 Introduction to Sustainability: Multidisciplinary Approaches and Solutions 1
- **GER-PE**
  - - 3

**Total AUs:** 22

### YEAR 2

#### SEMESTER 1

- **Core**
  - BS2001 Physiology 3
  - BS2002 Microbiology 3
  - BS2102 Chinese Materia Medica 6
  - BS2103 TCM Diagnostics 6
- **GER-Core**
  - HW0128 Scientific Communication 1 2
  - - 3

**Total AUs:** 23

---

### SEMESTER 2

- **Core**
  - BS2105 Emperor’s Canon of Internal Medicine 6
  - BS2106 TCM Formulary 8
  - BS2107 TCM Internship I 3
  - BS3104 Pathology 3

**Total AUs:** 21

**GER-Core**

- HY0001 Ethics & Moral Reasoning 1

### YEAR 3

#### SEMESTER 1

- **Major PE**
  - (See Table B) 3
- **Core**
  - BS3018 Plant Biology 3
  - BS3101 Treatise on Exogenous Febrile Diseases 6
  - BS3103 TCM Internship II 3
  - BS3108 Acupuncture & Moxibustion 6
- **GER-Core**
  - ML0002 Career Power Up 1

**Total AUs:** 22

#### SEMESTER 2

- **Major PE**
  - (See Table C) 3
- **Core**
  - BS2007 Immunology 3
  - BS2104 Biomedical Pharmacology 3
  - BS3102 Synopsis of the Golden Chamber 6
  - BS3106 Seasonal Febrile Diseases 6
  - BS3107 TCM Internship III 3
- **GER-Core**
  - ET0001 Entrepreneurship & Innovation 1

**Total AUs:** 25

**INTERSEMESTRAL**

- **Major PE**
  - BS4020 Final Year Project 12

**Total AUs:** 12
Tradional Chinese Medicine Advanced Principles and Clinical Training at Beijing University of Chinese Medicine (BUCM), China (Year 4 and Year 5)

YEAR 4

SEMESTER 1
- Basics of Diagnostics (诊断学基础)
- Internal Medicine of TCM (中医内科学)
- Orthopaedics, Traumatology of TCM (中医骨伤学)
- Ophthalmology of TCM (中医眼科学)
- Otolaryngology of TCM (中医耳鼻喉科学)
- Selected Literature in TCM (各家学说)

SEMESTER 2
- Modern Internal Medicine (西医内科学)
- Gynaecology of TCM (中医妇科学)
- External Medicine of TCM (中医外科学)
- Paediatrics of TCM (中医儿科学)
- Dermatology of TCM (中医皮肤病学)
- TCM Tui-Na (中医推拿学)

YEAR 5

SEMESTER 1 & 2
- TCM Clinical internship (中医临床实习)

TABLE B
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<th>Course Code</th>
<th>Course Title</th>
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<td>Bioimaging Techniques in EM</td>
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TABLE C
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^ Major PE which is conducted during the 1-week term break or semester vacation.
ABOUT THE COURSE

In collaboration with the School of Humanities and Social Sciences, this highly inter-disciplinary degree offers students the opportunity to specialize in two major academic disciplines from the two Schools. The programme equips students with the transferrable skills of a combined education for successful careers in the rapidly changing environment of the 21st century. In Singapore, with its population encountering increasing higher levels of stress, there is a growing emphasis on awareness of mental health and a demand for professionals with interdisciplinary training in Psychology. This programme offers more consistent depth in both disciplines. Students who have a curiosity in areas such as human emotions, behaviors and thoughts can now adopt a more integrated approach towards its understanding.

REQUIREMENTS

<table>
<thead>
<tr>
<th>COLLEGE OF SCIENCE</th>
<th>MINIMUM SUBJECT REQUIREMENTS</th>
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</table>
| Double Major - B.Sc. (Hons) in Biological Sciences & Psychology | H1 Level pass in Mathematics  
H2 Level pass in Physics / Chemistry / Biology |

Aside from the Biological Sciences Major, students will be required to learn:

- Introduction To Psychology
- Fundamentals of Social Science Research
- Research Design and Data Analysis in Psychology
- Biological Psychology
- Cognitive Psychology
- Abnormal Psychology

ABOUT THE COURSE

Select 12 Psychology Electives, for examples:

- Developmental Psychology
- Social Psychology
- Personality and Individual Differences
- Learning and Behavioral Analysis
- Positive Psychology
- Engineering Psychology
- Applied Statistical Methods for Psychological Research
- Evolutionary Psychology
- Alcohol, Drugs and Behavior
- Qualitative Methods in Psychology
- Applied Multivariate Methods for Psychological Research
- Clinical Psychology

CAREERS

Students can enter the field of research, teaching, healthcare management, human resource management, criminal rehabilitation. Research careers are even more wide-ranging, including contributing to governmental policy development (in areas such as healthy eating and exercise) or issues of importance for industry (improving work productivity, for example). Graduates from this programme can also explore further education leading to professions such as clinical psychologist and neuropsychologist.
### Double Major Programme in Biological Sciences and Psychology

#### Course Structure for Double Major in Biological Sciences and Psychology

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<th>COURSE TYPE</th>
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A minimum of CGPA 4.50 plus at least an ‘A−’ grade for the Final Year Project (FYP), are required for the award of a First Class Honours Degree.

#### General Education Requirement (GER) Core

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<tr>
<td>ML0001 Absolute Basics for Career</td>
<td>1</td>
</tr>
<tr>
<td>ML0002 Career Power Up</td>
<td>1</td>
</tr>
<tr>
<td>GC0001 Introduction to Sustainability: Multidisciplinary approaches and solutions</td>
<td>1</td>
</tr>
<tr>
<td>HY0001 Ethics and Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>ET0001 Entrepreneurship and Innovation</td>
<td>1</td>
</tr>
<tr>
<td>Total GER-Core</td>
<td>9</td>
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</tbody>
</table>

#### General Education Requirement (GER) Unrestricted Electives (UE)

<table>
<thead>
<tr>
<th>Students to choose any 2 GER-UE:</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS3001 Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>BS3014 Biological foundations of behavior</td>
<td>3</td>
</tr>
<tr>
<td>BS3019 Neuropsychology of Stress and Resilience</td>
<td>3</td>
</tr>
<tr>
<td>BS4011 Biology of Social Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Total GER-Core</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Final Year Project

<table>
<thead>
<tr>
<th>Students to choose either one of the following:</th>
<th>AU</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS4020 Final Year Project</td>
<td>12</td>
</tr>
<tr>
<td>BS4224 Professional Internship (11 AU) + BS4223 Professional Career Developmental (1 AU)</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
</tr>
</tbody>
</table>

---

**Course Type AU**

- **Biological Sciences (BS)**
  - Core: 36 AU
  - Major Prescribed Elective (Major PE): 21 AU
- **Psychology (PS)**
  - Core: 18 AU
  - Major Prescribed Elective (Major PE): 39 AU
- **Biological Sciences (BS) & Psychology (PS)**
  - Final Year Project: 12 AU

**General Education Requirement (GER) Core**

- **Communication**
  - HW0128 Scientific Communication I: 2 AU
  - HW0228 Scientific Communication II: 2 AU
- **ML0001 Absolute Basics for Career**: 1 AU
- **ML0002 Career Power Up**: 1 AU
- **GC0001 Introduction to Sustainability: Multidisciplinary approaches and solutions**: 1 AU
- **HY0001 Ethics and Moral Reasoning**: 1 AU
- **ET0001 Entrepreneurship and Innovation**: 1 AU

**General Education Requirement (GER) Unrestricted Electives (UE)**

- **Students to choose any 2 GER-UE**
  - BS3001 Neurobiology: 3 AU
  - BS3014 Biological foundations of behavior: 3 AU
  - BS3019 Neuropsychology of Stress and Resilience: 3 AU
  - BS4011 Biology of Social Behavior: 3 AU

**Total GER-Core**: 6 AU

**Final Year Project**

- **Students to choose either one of the following**
  - BS4020 Final Year Project: 12 AU
  - BS4224 Professional Internship (11 AU) + BS4223 Professional Career Developmental (1 AU): 12 AU

**Total**: 12 AU
BS1001 Introductory Biology
BS1002 Biophysical Chemistry
BS1003 Organic Chemistry
BS1005 Biochemistry I
BS1006 Principles of Genetics
BS1007 Molecular and Cell Biology I
BS1008 Biostatistics
BS1100 Molecular and Cell Biology Techniques Level 1
BS2001 Physiology
BS2002 Microbiology
BS2003 Biochemistry II
BS2008 Experimental Molecular and Cell Biology

BS2004 Molecular and Cell Biology II
BS2007 Immunology
BS2010 Bioimaging
BS2012 Genetics and Genomics
BS2014 Microbiological Biotechnology
BS211S Equations of Life ^
BS3332 Undergraduate Advanced Experimental Biology (UAEB) Workshop (Series I) - Methods in Histology
BS3335 Undergraduate Advanced Experimental Biology (UAEB) Workshop (Series I) - Protein behavior in health and disease - biophysical tools

Choose 1 course from the following list
BS3001 Neurobiology
BS3003 Developmental biology
BS3004 Cancer biology & Therapy
BS3005 Advanced molecular genetics
BS3018 Plant Biology
BS3021 Bioimaging Techniques in EM
BS3023 Regulatory Control of Healthcare Products and Medical Devices
BS3334 UAEB Workshop (Series II) - DNA engineering for fluorescent In-situ Hybridization (FISH)
BS3335 UAEB Workshop (Series II) - Effect of anti-mitotic drugs on cancer cells
BS3342 UAEB Workshop (Series II) - Role of Actin cytoskeleton regulators in metastasis
BS3343 UAEB Workshop (Series II) - Genetics of Human Diseases
BS4002 Current Topics in Cell Biology
BS4004 Current topics in immunology
BS4006 Virology
BS4009 Biology of Aging
BS4010 Synthetic Biology

BS4011 Biology of Social Behavior
BS4013 Physiological Systems: Animal Models for drug development
BS4014 Molecular Basis of Diseases
BS4015 Plant Biotechnology
BS9001 Research Experience
BS2103 TCM Diagnostics
HH2016 History of Animals

Choose 3 courses from the following list
BS3006 Bioentrepreneurship
BS3008 Computational Biology & Modelling
BS3010 Current topics in stem cell and developmental biology
BS3011 Protein folding & biomolecular NMR
BS3012 Functional genomics and proteomics
BS3013 Drug discovery & development, biotechnology
BS3014 Biological foundations of behavior
BS3015 The RNA World
BS3017 Advanced Microbial Pathogenesis
BS3019 Neuropsychology of Stress and Resilience
BS3022 Protein Trafficking
BS3331 UAEB Workshop (Series I) - Applied Immunology
BS3336 UAEB Workshop (Series I) - Proteomics Workshop
BS3339 UAEB Workshop (Series I) - Neurobiology
BS3340 UAEB Workshop (Series I) - Science of aging and life extension in C. elegans
BS3346 UAEB Workshop (Series I) - Bridges between Neuroscience and Psychology
BS1101 Basics of TCM

^ Recommended Major PE which is conducted during the 1-week term break or during the 2 weeks before the term starts.
^^ BS1101 and BS2103 are considered as ONE Major PE.
* BS3001, BS3014, BS3019 and BS4011 are allowed to be cleared as Major PE when all UE requirements have been fulfilled.
## Psychology Major Structure:

<table>
<thead>
<tr>
<th>6 COMPULSORY COURSES (18 AUs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP1000 Introduction To Psychology</td>
</tr>
<tr>
<td>HP1100 Fundamentals of Social Science Research</td>
</tr>
<tr>
<td>HP2100 Research Design and Data Analysis in Psychology</td>
</tr>
<tr>
<td>HP2200 Biological Psychology</td>
</tr>
<tr>
<td>HP2600 Cognitive Psychology</td>
</tr>
<tr>
<td>HP2700 Abnormal Psychology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12 PRESCRIBED ELECTIVES (39 AUs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Choose 12 courses from the following list, 3 must be from the level 4000 courses.</strong></td>
</tr>
</tbody>
</table>

### Level 2000 and 3000 courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP2300</td>
<td>Developmental Psychology</td>
</tr>
<tr>
<td>HP2400</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>HP2500</td>
<td>Personality and Individual Differences</td>
</tr>
<tr>
<td>HP3001</td>
<td>Learning and Behavioral Analysis</td>
</tr>
<tr>
<td>HP3002</td>
<td>Positive Psychology</td>
</tr>
<tr>
<td>HP3003</td>
<td>Engineering Psychology</td>
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<tr>
<td>HP3101</td>
<td>Applied Statistical Methods for Psychological Research</td>
</tr>
<tr>
<td>HP3201</td>
<td>Evolutionary Psychology</td>
</tr>
<tr>
<td>HP3202</td>
<td>Alcohol, Drugs and Behavior</td>
</tr>
<tr>
<td>HP3203</td>
<td>Conservation Psychology</td>
</tr>
<tr>
<td>HP3301</td>
<td>Issues and Concerns in Adolescence</td>
</tr>
<tr>
<td>HP3302</td>
<td>Cognitive Development</td>
</tr>
<tr>
<td>HP3401</td>
<td>The Social Psychology of Human Communication</td>
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<tr>
<td>HP3402</td>
<td>Social Cognition</td>
</tr>
<tr>
<td>HP3501</td>
<td>Human Motivation</td>
</tr>
<tr>
<td>HP3601</td>
<td>Human Memory</td>
</tr>
<tr>
<td>HP3602</td>
<td>Reading Development &amp; disorders</td>
</tr>
<tr>
<td>HP3603</td>
<td>Sensation &amp; Perception</td>
</tr>
<tr>
<td>HP3701</td>
<td>Psychological Adjustment and Mental Health</td>
</tr>
<tr>
<td>HP3702</td>
<td>Child Psychopathology</td>
</tr>
<tr>
<td>HP3703</td>
<td>Health Psychology</td>
</tr>
<tr>
<td>HP3704</td>
<td>Introduction to Clinical Neuropsychology</td>
</tr>
<tr>
<td>HP3705</td>
<td>Clinical Community Psychology</td>
</tr>
<tr>
<td>HP3706</td>
<td>Biofeedback &amp; Neurofeedback: Health and performance</td>
</tr>
<tr>
<td>HP3707</td>
<td>The psychology of pain and its management</td>
</tr>
<tr>
<td>HP3801</td>
<td>Psychology in the Workplace</td>
</tr>
<tr>
<td>HP3802</td>
<td>Personnel Psychology</td>
</tr>
<tr>
<td>HP3804</td>
<td>Psychological Testing</td>
</tr>
<tr>
<td>HP3805</td>
<td>Managing Organisational Behavior</td>
</tr>
<tr>
<td>HP3806</td>
<td>Consumer psychology</td>
</tr>
<tr>
<td>HP3807</td>
<td>Occupational Health Psychology</td>
</tr>
<tr>
<td>HP3901</td>
<td>Cultural Psychology</td>
</tr>
<tr>
<td>HP3902</td>
<td>Psychology in the Asian Context</td>
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</table>

### Level 4000 courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>HP4002</td>
<td>Qualitative Methods in Psychology</td>
</tr>
<tr>
<td>HP4012</td>
<td>Applied Multivariate Methods for Psychological Research</td>
</tr>
<tr>
<td>HP4101</td>
<td>Clinical Psychology</td>
</tr>
<tr>
<td>HP4102</td>
<td>Trauma Psychology and Crisis Management</td>
</tr>
<tr>
<td>HP4103</td>
<td>The Forensic Psychology of Crime, Terrorism and Disasters</td>
</tr>
<tr>
<td>HP4104</td>
<td>Evidence-based Practice in Clinical Psychology</td>
</tr>
<tr>
<td>HP4105</td>
<td>Correctional psychology</td>
</tr>
<tr>
<td>HP4106</td>
<td>Mental Health in the Community</td>
</tr>
<tr>
<td>HP4201</td>
<td>Technology and Social Behaviour</td>
</tr>
<tr>
<td>HP4211</td>
<td>Agent-Based Computational Psychology</td>
</tr>
<tr>
<td>HP4221</td>
<td>Primate Psychology</td>
</tr>
<tr>
<td>HP4222</td>
<td>Comparative Physiology of Social Interaction</td>
</tr>
<tr>
<td>HP4231</td>
<td>Social and Emotional Development</td>
</tr>
<tr>
<td>HP4232</td>
<td>Development of Self-Regulation</td>
</tr>
<tr>
<td>HP4233</td>
<td>Psychological and Sociomoral Reasoning in Infancy</td>
</tr>
<tr>
<td>HP4241</td>
<td>Interpersonal relations and family studies</td>
</tr>
<tr>
<td>HP4242</td>
<td>Advanced Topics in Social Cognition</td>
</tr>
<tr>
<td>HP4243</td>
<td>Intergroup relations</td>
</tr>
<tr>
<td>HP4261</td>
<td>Computational and Cognitive Neuroscience of Vision</td>
</tr>
<tr>
<td>HP4262</td>
<td>Multisensory integration</td>
</tr>
<tr>
<td>HP4263</td>
<td>Language in Perception and thought</td>
</tr>
<tr>
<td>HP4271</td>
<td>Cognitive Neuropasticity</td>
</tr>
<tr>
<td>HP4272</td>
<td>Neuropsychology</td>
</tr>
<tr>
<td>HP4273</td>
<td>Introduction to FMRI</td>
</tr>
<tr>
<td>HP4274</td>
<td>The Last Dance: Psycho-socio-cultural perspectives of Death, Dying and Bereavement</td>
</tr>
<tr>
<td>HP4281</td>
<td>Psychology of Leadership</td>
</tr>
<tr>
<td>HP4282</td>
<td>Negotiation and Conflict Resolution</td>
</tr>
</tbody>
</table>