Admission Number | 2 | 1 | 0 | 1 | M | G | 0 | 0 |

Master of Science Programme in Anatomy and Structural Biology (International Programme)

หลักสูตร วิทยาศาสตรมหาบัณฑิต สาขาวิชา กายวิภาคศาสตร์และชีววิทยาโครงสร้าง (หลักสูตรนานาชาติ)(ภาคปกติ)

Faculty of Science Department of Anatomy

คณะวิทยาศาสตร์ ภาควิชา กายวิภาคศาสตร์

Expected number of students to be accepted all year round : 20 Students

Admission Requirements

A candidate must:

1. must hold Bachelor degree of Science or any equivalent degree, or be studying in the final year in Bachelor of Science programme, in Bachelor of Nursing programme, or in other Bachelor degree in biomedical science;
2. have a minimum grade point average of 2.50;
3. Submit a certificate of English proficiency with minimum admission score:
   - IELTS - at least 3 or
   - TOEFL INTERNET BASED - at least 32 or
   - TOEFL ITP (test arranged by Faculty of Graduate Study, Mahidol University) - at least 400 or
   - MU GRAD TEST (Computer based) - at least 36

   Important Notes:
   - English proficiency score must be taken within 2 years up to the admission date.
   - Application without submitting a valid English certificate will NOT be considered.
   - MU English Competence Standards: www.grad.mahidol.ac.th
   - MU English proficiency tests, please contact the Language Center, Faculty of Graduate Studies. Tel. 0-2441-4125 ext. 221-222
4. Exemption from the above conditions may be granted by the Programme Committee under exceptional circumstances.

Written Examination

There is NO written examination for this program. Applicants must check their eligibility for interview upon the announcing date of the interview list which is scheduled for each admission round.

Curriculum Structure

	Credit
Plan A, Type A(2)	
Required courses	18
Elective courses not less than	6
Thesis	12

			Credit
Required courses			
SCAN	502	Structural Neurobiology	3(2-3-5)
SCAN	520	Human Structure and Development	3(3-0-6)
SCAN	521	Human Gross Anatomy Dissection	2(0-6-3)
SCAN	522	Structural Biology of Cell and Tissues	3(2-3-5)
SCAN	613	Seminar in Anatomy and Structural Biology I	1(1-0-2)
SCAN	614	Seminar in Anatomy and Structural Biology II	1(1-0-2)
SCID	500	Cell and Molecular Biology	3(3-0-6)
SCID	514	Animal Experimentation in Biomedical Research	1(0-2-1)
SCID	518	Generic Skills in Science Research	1(1-0-2)
Elective courses			
SCID	507	Microscopic Techniques	1(0-2-1)
SCID	508	Biomolecular and Spectroscopic Techniques	1(0-2-1)
SCID	509	Separation Techniques	1(0-2-1)
SCID	510	Immunological Methods	1(0-2-1)
SCID	511	Gene Technology	1(0-2-1)
SCID	513	Animal Cell Culture Techniques	1(0-2-1)
SCID	516	Biostatistics	3(3-0-6)
SCBT	502	Recombinant DNA Technology	3(2-3-5)
SCID	531	Microcomputer Applications	3(3-0-6)
SCID	532	Computer Programming	3(3-0-6)
SCID	533	Data Processing	3(3-0-6)
Thesis			
SCAN	698	Thesis	12(0-48-0)

*** These may change in cases where there are suggestions for the improvement of the curriculum**

Areas of research that a student can select for his / her research Thesis / Dissertation

1. Structural Cell and Molecular Biology

1. Shrimp biotechnology.
2. Virus and host interaction in shrimp.
3. Characterization of molecules involved in aquatic animal adaptation and excretory system.
4. Cell surface ligand-receptor interaction.
5. Molecular studies on dengue-2 virus and their variants

2. Neuroscience

1. Cellular and molecular mechanisms of neurodegeneration.
2. The roles of astrocyte and microglia in neuroprotection and neurotoxicity.
3. Synaptic plasticity and brain development.
4. Neuroendocrine control of growth and reproduction in mollusks and crustaceans.
5. Identification and mapping of neurotransmitters and corresponding receptors that are involved in the reproductive controls in the central nervous system of crustaceans and abalone.
6. Pathogenesis of motor neuron degeneration.
7. Gene expression profiling in neurological disorders.

3. Stem Cell Biology and Embryo Technology in mammal

1. Embryonic stem cell research on proliferation and differentiation.
2. Stem cells for cell therapy.
3. Tissue engineering and transplantation for hearing research.
4. Bone-marrow mesenchymal stem cells for treatment of stroke.
5. Animal gamete and embryo technology : in vitro embryo production, nuclear transfer, cryopreservation and genetic manipulation.
6. Transgenic animal models for diseases.

4. Reproductive Biology and Neuro-endocrinology of economic mollusks and crustaceans

1. Endocrine manipulation of the reproductive process for increased production in abalone and economic crustaceans.
2. Characterization and distribution of reproductive neuropeptides and hormones in abalone and economic crustaceans.
3. Reproductive biotechnology in shrimp.
4. Molecular mechanisms of gamete maturation, capaitation, and fertilization.
5. Gamete membrane molecules and signal transduction during fertilization.
6. Genetic manipulation for enhancing reproduction of aquatic animals.
7. Cryopreservation of gamete and larvae of polycheate, *Perineresis nuntia*.
8. Cryopreservation of gametes and embryos of abalone and prawn.

5. Development of immunodiagnosis, drugs and vaccines for fasciolosis and schistosomiasis

1. Development of immuno-diagnosis and vaccine for fasciolosis.
2. Drug discoveries from natural bioactive compounds for trematode and nematode parasites.
3. Using *Caenorhabditis elegans* model organism in studying parasitic diseases.

6. Cancer Research

1. Cell-matrix interaction: signaling involved cell migration, cancer invasion and metastasis.
2. Analysis of translation elongation factor 1A2 (*EEF1A2*) genes in various cancers.
3. Antiviral and anticancer effects of medicinal herbs.

Additional advantages of the programme

Graduate students in M.Sc. and Ph.D. programmes can select their research topics from a wide variety of ongoing research both in the Department of Anatomy and in the Center of Excellence.

Market demand for graduates from our programs is still high, especially in government and private universities. Graduates will be trained to be a professional in teaching and research skills.

Details of Scholarships

1. Partial Scholarship (Faculty of Science) : support up to 90% of tuition fee / research fee
2. Teaching Assistantships funding from Faculty of Science.
3. Scholarship of the 60th Year Supreme Reign of His Majesty King Bhumibol Adulyadej.

Application Process

Application is only available via online application at www.grad.mahidol.ac.th

Required Documents

Applicants must upload all documents via online admission system. All documents must be in PDF format (maximum size 2 MB). Photograph must be in JPEG format.

- Recent photographs (1x1 inch in size)
- A copy of an applicant's degree certificate or a letter of graduation certification (for an applicant with a degree completion)
- A letter certifying that an applicant is currently in the final year prior to graduation (for an applicant seeking for a degree)
- A detailed transcript of a degree (for an applicant with a degree completion)
- A grade report with course names and grades received from the first to the current semester prior to graduation
- A copy of identification card
- A copy of house registration certification
- A copy of Certificate of English proficiency :
  IELTS / TOEFL INTERNET BASED / TOEFL ITP / MU GRAD TEST(Computer based)
- A copy of proof of payment.

Job option after graduation

- Expert in the field of anatomy and structural biology
- Researcher in the field of anatomy and structural biology in governmental or private institutes
- Researcher in the field of biomedical science in governmental or private institutes
- Scientist in the field of anatomy universities

Further information may be obtained from the Director of Graduate Studies,

Department of Anatomy, Faculty of Science :

1. **Assoc.Prof. Kanokpan Wongprasert (E-mail : kanokpan.won@mahidol.ac.th)**
   Room B124, Biology Building, Floor 1,
   Department of Anatomy, Faculty of Science
   Tel. : 0 2201 5447 Fax. : 0 2354 7168

2. **Assoc.Prof. Permphan Dhamasaroja (E-mail : permphan.dha@mahidol.ac.th)**
   Room B118, Biology Building, Floor 1,
   Department of Anatomy, Faculty of Science
   Tel. : 0 2201 5447 Fax. : 0 2354 7168

Program Coordinator

Mrs. Waraporn Bunphet (E-mail : waraporn.bun@mahidol.ac.th)
Room B106, Biology Building, Floor 1,
Department of Anatomy, Faculty of Science
Tel. : 0 2201 5447 Fax. : 0 2354 7168

Notes

1. The programme of Anatomy and structural Biology requires students to study the pre – requisite course:
   - SCID 500 Cell and Molecular Biology 3 Credits
2. For more information : **www.grad.mahidol.ac.th**

For more information please contact The Student Admission Section.
Tel. 0 2441 4125 ext. 208-210, 0 2441 9129, E-mail : gradthai@mahidol.ac.th