Admission Number

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

Faculty of Science Department of Anatomy

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. have a TOEFL ITP score of at least 480, TOEFL Internet-based score of 54 or IELTS score of 5 or MU GRAD TEST score of 60.

Exemption from the above conditions may be granted by the Programme Committee under exceptional circumstances.

Curriculum Structure

<table>
<thead>
<tr>
<th>Plan A, Type A(2)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required courses</td>
<td>18</td>
</tr>
<tr>
<td>Elective courses not less than</td>
<td>6</td>
</tr>
<tr>
<td>Thesis</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required courses</th>
<th>Credit</th>
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<tbody>
<tr>
<td>SCAN 502 Structural Neurobiology</td>
<td>3(2-3-5)</td>
</tr>
<tr>
<td>SCAN 520 Human Structure and Development</td>
<td>3(3-0-6)</td>
</tr>
<tr>
<td>SCAN 521 Human Gross Anatomy Dissection</td>
<td>2(0-6-3)</td>
</tr>
<tr>
<td>SCAN 522 Structural Biology of Cell and Tissues</td>
<td>3(2-3-5)</td>
</tr>
<tr>
<td>SCAN 613 Seminar in Anatomy and Structural Biology I</td>
<td>1(1-0-2)</td>
</tr>
<tr>
<td>SCAN 614 Seminar in Anatomy and Structural Biology II</td>
<td>1(1-0-2)</td>
</tr>
<tr>
<td>SCID 500 Cell and Molecular Biology</td>
<td>3(3-0-6)</td>
</tr>
<tr>
<td>SCID 514 Animal Experimentation in Biomedical Research</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 518 Generic Skills in Science Research</td>
<td>1(1-0-2)</td>
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**Elective courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SCID 507</td>
<td>Microscopic Techniques</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 508</td>
<td>Biomolecular and Spectroscopic Techniques</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 509</td>
<td>Separation Techniques</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 510</td>
<td>Immunological Methods</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 511</td>
<td>Gene Technology</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 513</td>
<td>Animal Cell Culture Techniques</td>
<td>1(0-2-1)</td>
</tr>
<tr>
<td>SCID 516</td>
<td>Biostatistics</td>
<td>3(3-0-6)</td>
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<tr>
<td>SCBT 502</td>
<td>Recombinant DNA Technology</td>
<td>3(2-3-5)</td>
</tr>
<tr>
<td>SCID 531</td>
<td>Microcomputer Applications</td>
<td>3(3-0-6)</td>
</tr>
<tr>
<td>SCID 532</td>
<td>Computer Programming</td>
<td>3(3-0-6)</td>
</tr>
<tr>
<td>SCID 533</td>
<td>Data Processing</td>
<td>3(3-0-6)</td>
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</table>

**Thesis**

- SCAN 698 Thesis 12(0-48-0)

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

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**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.
   5. Molecular studies on dengue-2 virus and its 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.

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.
   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.

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**
Prepare the following required documents to submit via online admission system or post:

1. Completed an Online Application at [www.grad.mahidol.ac.th](http://www.grad.mahidol.ac.th) which comprised with
   - **Form A**: Application Form
   - **Form B**: Background and Proposed Field of Study
   - **Form C**: Recommendation Forms (directly submitted by at least 2 referees)
2. Two copies of Degree Certificate (with officially certified English translation)
3. Two copies of Academic Transcript (with officially certified English translation)
4. Two copies of Recent Photos (Passport size)
5. Two copies of Passport
6. Two copies of English certificate (TOEFL/ IELTS/ MU-Grad Test)

*(For Doctoral Program)*
- TOEFL ITP score of at least 500, TOEFL Internet-based score of 61, or IELTS score of 5

*(For Master's Program)*
- TOEFL ITP score of at least 480, TOEFL Internet-based score of 54, IELTS score of 5 or MU GRAD TEST score of 60.

**Notes**
- Only accept TOEFL ITP score from examination center arranged by Faculty of Graduate Studies, Mahidol University.
- TOEFL ITP taken from other domestic and overseas institutes are invalid.
- The test date must be within previous 2 years before application date.
- Applicant who obtained a valid English score must submit an [official score certificate](http://www.grad.mahidol.ac.th/en/current-students/language-center.php) along with your application. Otherwise, your English score will not be considered.
- Detail of English Competency Standard for Admission:

7. Two copies of Curriculum Vitae
8. Two copies of Statement of Purposes and Career Goals
9. Two copies of Current bank statement / Scholarship letter (if any)
10. Two copies of Concept paper / research proposal (recommended for all applicants)
11. Two copies of additional documents may be requested by each program (such as letter of work experience / professional license/ related certificates and awards)

Submitting documents via online admission system.
- All documents must be in [pdf format](http://www.mahidol.ac.th) (maximum size 2 MB)
- Recent photograph must be in [jpeg format](http://www.mahidol.ac.th) only (maximum size 2 MB)

**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:**

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   (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 : gradinter@mahidol.ac.th