POSTGRADUATE STUDIES PROGRAMME
(2016/2017)

INSTITUTE FOR MATHEMATICAL RESEARCH
INSTITUT PENYELIDIKAN MATEMATIK

Universiti Putra Malaysia
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message from Director</td>
<td>1</td>
</tr>
<tr>
<td>Message from Deputy Director</td>
<td>2</td>
</tr>
<tr>
<td>Profile</td>
<td>3</td>
</tr>
<tr>
<td>Vision and Mission</td>
<td>4</td>
</tr>
<tr>
<td>Postgraduate Studies Programme</td>
<td>5</td>
</tr>
<tr>
<td>- Admission Requirement</td>
<td>5</td>
</tr>
<tr>
<td>- Programme</td>
<td>5</td>
</tr>
<tr>
<td>- English Proficiency Requirement</td>
<td>6</td>
</tr>
<tr>
<td>Fields of Study</td>
<td>7</td>
</tr>
<tr>
<td>- Laboratory of Cryptography, Analysis and Structure</td>
<td>7</td>
</tr>
<tr>
<td>- Laboratory of Computational Statistics and Operations Research</td>
<td>9</td>
</tr>
<tr>
<td>- Laboratory of Computational Sciences and Mathematical Physics</td>
<td>11</td>
</tr>
<tr>
<td>- Laboratory of Ethnomathematics and Didactics</td>
<td>13</td>
</tr>
<tr>
<td>Services</td>
<td>14</td>
</tr>
<tr>
<td>Laboratory of Statistical and Computing Services</td>
<td>14</td>
</tr>
<tr>
<td>Financial Assistance</td>
<td>15</td>
</tr>
<tr>
<td>- Graduate Research Fellowship (GRF)</td>
<td>15</td>
</tr>
<tr>
<td>- International Graduate Research Fellowship (iGRF)</td>
<td>16</td>
</tr>
<tr>
<td>- Graduate Research Assistance (GRA)</td>
<td>17</td>
</tr>
<tr>
<td>- Special Graduate Research Allowance Scheme (S-GRA)</td>
<td>18</td>
</tr>
<tr>
<td>- International Graduate Student Scholarship (IGSS)</td>
<td>19</td>
</tr>
<tr>
<td>- Putra Alumni Scholarship Scheme (PASS)</td>
<td>20</td>
</tr>
<tr>
<td>Postgraduate Fees</td>
<td>22</td>
</tr>
<tr>
<td>Contact Us</td>
<td>23</td>
</tr>
</tbody>
</table>
Established in 2001, INSPEM is the first research institute founded in Malaysia with the mandate of specializing in the research field of mathematics. The primary function of the establishment of INSPEM is to create a critical mass of researchers in the high-end research of mathematics, perform research in all areas that have been identified, creating the latest mathematical research facility, become a reference centre of mathematical research, disseminating research information of INSPEM to public and private sectors, create training facilities to young researchers and to establish collaborations with researchers and research institutions within and outside the country. Beyond 10 years of establishment, the institute has grown rapidly with varieties of mathematical research conducted at INSPEM as well as organizing various activities such as conferences, courses and seminars. INSPEM also conducts research collaborations with various institutions within and outside the country through MoU and MoA cooperation.

Currently INSPEM has four research laboratories namely Laboratory of Cryptography, Analysis and Structure, Laboratory of Computational Statistics and Operations Research, Laboratory of Computational Sciences and Mathematical Physics and Laboratory of Ethnomathematics and Didactics. INSPEM also has one service laboratory namely Laboratory of Statistical and Computing and Services the main objective of this laboratory is to provide high-end statistical and high performance computing services to researchers from various fields both inside and outside of university.

I hope you will find the information given in this booklet enlightening and useful. If there are any questions and things that are not clear about INSPEM, please do contact us by referring to the contact info given in this booklet.

Thank you.

PROF. DR. NOOR AKMA IBRAHIM
Director
Institute for Mathematical Research
Universiti Putra Malaysia
Research traditions are kept alive by nurturing young researchers to continue to explore new research frontiers and generate new knowledge. This is often done in most institutions by offering postgraduate research programmes. The Institute for Mathematical Research (INSPEM) in Universiti Putra Malaysia is no exception. INSPEM offers both Masters and PhD programmes in selected areas of Mathematical Sciences most of which are interdisciplinary in nature.

This booklet is for potential young researchers who are interested in pursuing further studies in various areas of mathematical sciences within INSPEM. It covers the fields of study currently offered by the institute, the prerequisite for their study program, the facilities available for students/researchers as well as possible financial support. It is hoped that this booklet will help potential students to consider INSPEM as the definitive choice for pursuing a research career.

Finally, I would like to thank all of those who helped to produce this booklet and our best wishes to potential students in pursuing their studies.

Thank you.

ASSOC. PROF. DR. HISHAMUDDIN ZAINUDDIN
Deputy Director
Institute for Mathematical Research
Universiti Putra Malaysia
The **Institute for Mathematical Research (INSPEM)** is one of the ten Research institutes in Universiti Putra Malaysia (UPM). It is formed to spearhead and champion research in mathematical sciences and to fill the need for a mathematical research centre in Malaysia. Research carried out under the institute covers many topics of mathematics and other branches of science whose major components involve mathematical and computational tools including interdisciplinary ones.
The institute began operating on 1 April 2002 after its establishment was approved by the Division of Higher Education, Ministry of Education in November 2001. INSPEM is under the administration of UPM and is currently subject to the rules stipulated in the statute of the establishment of institutes in UPM.

It is the vision of INSPEM to become a renowned institute in mathematical sciences research contributing towards the development of progress and well-being of mankind. This agrees well with the nation’s aspiration and vision to become an advanced and progressive nation built on solid foundations of knowledge.

The main objectives of INSPEM are:

- To carry out research in all identified areas.
- To established critical-mass of researchers in high-end areas of mathematics.
- To acquire state-of-art research facilities.
- To be a reference centre in matters pertaining to mathematics.
- To disseminate information on research products of INSPEM locally and internationally.
- To establish local and international networking with researches and research institutions.

The main activities of INSPEM include planning, identifying and implementing research in Cryptography, Analysis and Structure, Computational Statistics and Operations Research, Computational Sciences and Mathematical Physics and Ethnomathematics and Didactics. The institute also provides opportunities for collaborative research with agencies from both inside and outside of UPM. It is also a primary function of INSPEM to invite potential young researchers to carry out research that leads to postgraduate degrees.

VISION

It is the vision of the Institute for Mathematical Research to become a renowned institute in mathematical sciences research contributing towards the development of progress and well-being of mankind.

MISSION

To establish and carry out world class research activities in mathematical sciences that contributes towards the exploration and enculturation of mathematical sciences in an integrated manner.
**ADMISSION REQUIREMENT**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Philosophy</td>
<td>Candidate should have obtained a Master’s degree in the related field</td>
</tr>
<tr>
<td>Master of Science (with thesis)</td>
<td>Bachelor in the related field with CGPA of 3.00; or Bachelor who possess CGPA exceeding 2.50 should have two (2) years of working experience in the related field</td>
</tr>
</tbody>
</table>

**PROGRAMME**

1. **Doctor of Philosophy**
   - A student pursuing a PhD degree with thesis must:
     i. submit a thesis for examination at the end of the study and comply with any other specific requirements of the relevant graduate programme as advised by advisor/supervisor.
     ii. pass the Comprehensive Examination which comprises of two parts: written and oral examination.
     iii. register one (1) credit of Proposal Seminar (SPS6903) in the 1\(^{\text{st}}\) or 2\(^{\text{nd}}\) semester and one (1) credit of Final Seminar (FSA6905) in the 4\(^{\text{th}}\) or 5\(^{\text{th}}\) semester.
     iv. register three (3) credit of Research Methodology course.
     v. have published one (1) journal article and submitted one (1) journal article.

2. **Master of Science (with thesis)**
   - A student pursuing a Masters degree with thesis must:
     i. submit a thesis for examination at the end of the study and comply with any other specific requirements of the relevant graduate programme as advised by advisor/supervisor.
     ii. register one (1) credit of Proposal Seminar (SPS5903) in the 1\(^{\text{st}}\) or 2\(^{\text{nd}}\) semester and one (1) credit of Final Seminar (FSA5905) in the 3\(^{\text{rd}}\) or 4\(^{\text{th}}\) semester.
     iii. register three (3) credit of Research Methodology course.
     iv. submit one (1) journal article.
## ENGLISH PROFICIENCY REQUIREMENT

1. A Malaysian candidate must have obtained at least a credit in English at Sijil Pelajaran Malaysia level or have passed English courses conducted at the Diploma or Bachelor’s level.

2. For direct admission, an international applicant must have obtained a minimum score of 550 for the TOEFL paper-based test or Band 6 for IELTS (academic version), or 79-80 for TOEFL internet-based test or 213 for TOEFL computer-based test, or Level 109 for CIEP, or their equivalent. TOEFL ITP is not acceptable. The validity period should not be more than five (5) years.

3. An international applicant who obtains a score of 500-549 for the TOEFL paper-based test and Band 5.5 for IELTS (academic version), or Level 107 for CIEP or their equivalent maybe accepted for admission on a provisional basis for any degree programme except for programmes with thesis in the fields of English Language, English Literature and Teaching of English as a Second Language.

4. An international applicant who has obtained a degree from any public university in Malaysia will be exempted from English language proficiency requirement.

5. An international applicant for Masters degree programme who has undergone his secondary school and Bachelor’s degree education in English language are exempted from the requirement stated in (2). Applications for exemption must be accompanied by supporting documents.

6. An international applicant for the PhD degree programme who has undergone his secondary school and Bachelor’s and Masters degree education in English language shall also be exempted from the requirement stated in (2). Applications for exemption must be accompanied by supporting documents.

7. An international applicant who is given a provisional admission based on his academic standing without proof of his English language proficiency at the time of application must provide evidence of having met at least the minimum score of 500-549 for the TOEFL paper-based test or its equivalent, Band 5.5 for IELTS (academic version) at the time of registration.
FIELDS OF STUDY

LABORATORY OF CRYPTOGRAPHY, ANALYSIS AND STRUCTURE

Head of Laboratory
Assoc. Prof. Dr. Mohamad Rushdan Md Said
Email: mrushdan@upm.edu.my
Phone: +603-89466841

1. Mathematical Cryptography

Cryptography is a fast developing mathematical field due to its widespread use in information security. Research revolves around mathematical ideas and subjects namely number theory, geometric algebra, chaos theory and other related fields. Amongst the current research interests are cryptographic efficient algorithms, primality testing, factoring large integers, lattice-based cryptography, sieve methods, elliptic curve cryptography discrete log problems and other related fields. Their main aims being the development, improvement and implementation of cryptographic protocols based on mathematics that has become standards for communications security based on mathematics that has become standards for communications security.

2. Analytical and Structural Mathematics

This field encompasses three subfields which are Analytical Methods in Number Theory, Structural Theory of Algebra and Functional Analysis and Topology. Under Analytical Methods in Number Theory, among the research topics are the following: determining an estimation of the exponential sums for multi-variable polynomials, estimation of the multiple exponential sums for two-variable polynomials of higher degree, finding the p-adic sizes of factorial functions and the diophantine equation problems. The main focus of research under Structural Theory of Algebra are finding the isomorphism classes and invariants of Leibniz algebras, classification problems of Diassociative and Dendriform algebras and studying the properties of Armendariz and Gamma-rings and their generalizations. Functional analysis and topology study the classes of infinite-dimensional topological vector spaces that appear in functional analysis. Such spaces include Fréchet spaces, LF-spaces and their duals, and the space of continuous real-valued functions $C(X)$ on a completely regular Hausdorff space $X$, to name a few.
3. **Financial Mathematics**

Financial Mathematics is a field of mathematics which is concerned with application of mathematical methods to the solution of problems in financial markets. Generally financial mathematics will derive and extend the mathematical and numerical models suggested by financial markets or financial economics.
1. Applied and Computational Statistics

Computational Statistics are computer intensive methods to solve existing statistical problems computationally. The field of Applied and Computational Statistics comprises of the following sub-fields; Statistical Modelling and Forecasting, Computational Statistics and Inference and Reliability Analysis.

A detailed description of these sub-fields are as follows:

i) The sub-field of Statistical Modelling and Forecasting encompasses Time Series Analysis, Forecasting, Spatial Modelling, Extreme Value Theory, Envirometrics, Regression Analysis and Design of Experiments. Time Series is a sequence of random variables observed over an indexed set. Time series research is centred about Generalised ARMA (GARMA) models. In spatial modeling, research is focused on FISSARMA and integer-valued spatial models. In extreme value theory research is focused on spatial extreme and environmental models. Research interest in regression analysis is focused on diagnostics, robust and nonparametric techniques and logistic regression. Diagnostics, Generalized Linear Model for designed experiments with non-normal response and robust techniques in Design and Analysis of Experiments are also current research areas.

ii) This sub-field of Computational Statistics and Inference comprises of Robust Statistics, Influence Diagnostics, Bootstrapping, Bayesian Statistics, Monte Carlo Markov Chain (MCMC) and Statistical Data Mining. In robust statistics, research is focused in robust regression, outlier detection, estimation of parameters in linear and non linear models and quality control techniques. A robust bootstrapping technique is another focus area of research. Research interest in Bayesian statistics focuses on prior in formation, formulation and solution of simple and complicated decision theory problems. The MCMC research interest focuses on the MCMC algorithm for performing Bayesian inferences on complex stochastic models. In statistical data mining, research is focused on developing new inferential techniques in data mining by optimization technique, bagging and boosting.
iii) The sub-field of Reliability Analysis consists of four areas of research which are Survival Analysis, Medical Statistics, Biostatistics and Quality Control. Survival analysis is a branch of statistics dealing with death in biological organisms and failure in mechanical systems. More generally, survival analysis involves the modeling of time to event data. Medical statistics is applications of statistics to the field of health and medicine such as a public health, forensic medicine, as well as clinical sciences. Biostatistics is the application of statistics to a wide range of areas in biology that leads to a particular application to medicine and to agriculture. Research is focused on Relative Survival, Cure Fraction, Survival Tree and Bayesian Survival Analysis.

2. **Computational Operations Research**
   This programme consists of four research areas namely mathematical programming, approximation, optimization and operations research. Research is focused on genetics algorithm, meta-heuristics, data envelopment analysis etc.

3. **Computational and Mathematical Biology**
   Computational and mathematical biology is an area that aims at the mathematical representation, analysis, and modeling of biological processes using a variety of applied mathematical techniques such as calculus, probability theory, statistics, graph theory, topology, dynamical systems, differential equations, coding theory etc. It has practical applications in biology, biotechnology, biomedical research and also epidemiology and population dynamics. Current research interests includes disease modeling, in silico modeling of proteins and bioinformatics.
1. Computational Mathematics
Computational mathematics is the branch of mathematics which is concerned primarily with ways to compute results of various problems by applying the theory of numerical analysis. Through the development and execution of sophisticated computer programs, approximate numerical solutions are achieved as opposed to the analytic solutions. As high speed computers provide ever increasing simulation capabilities, the importance of this field has never been greater. Current research interests include the numerical solution of differential equations of types ordinary, delay, fuzzy, algebraic and stiff. The area of focus is the Runge-Kutta method, multistep method, hybrid method, block method and parallel numerical method.

2. Mathematical Physics & Engineering
Mathematical Physics & Engineering is broadly the study of mathematical structures and techniques in physical sciences and engineering. The scope of study covers traditional areas of applied mathematics like equations of fluid dynamics, continuum mechanics, and dynamical systems; as well as those from quantum sciences and relativity. The latter includes exploring novel mathematical structures that underlie quantum theory and space-time, and established topics of operator theory, equations of mathematical physics, and geometric & topological methods. Topical areas of interest are problems of cracks, integro-differential equations, foundations of quantum theory, quantum information and cosmological solutions.

3. Fluid Dynamics
Fluid dynamics is the study of fluid flow and it has many applications such as in aerodynamics of vehicles, fuel flow and hydrology. The nonlinear differential equations that describe fluid flow do not usually have closed-form solutions and they often require either clever analytic manipulations or numerical computations. Recent research interests include stability of fluid flow, surface tension gradient phenomena and granular flow.
4. Computational Electromagnetics
Many physical phenomena involve mechanical and electromagnetic waves propagating through various mediums and in various conditions. Solving the partial differential equations describing their propagation is of importance to many applications. Recent research interests include propagation of electromagnetic waves in telecommunications and in sensors.

5. Computable Structures and Scientific Computing
Advances in computer science have shown that computing is no longer limited to numerical type. More general structures are now very much being used for information manipulation and computing. In addition different logical systems and general ideas of computability are currently being explored. These developments overlap areas of pure mathematics, theoretical computer science and theoretical physics. Application includes symbolic and graphic programming, artificial intelligence, new programming language etc. Current research interests include automata theory, quantum computing, computer algebra programming, parallel programming and applications.
1. **Ethnomathematics**
   Ethnomathematics is a study of the relationship between mathematics and culture which is aimed to contribute both to the understanding of culture and mathematics and their interrelationships.

2. **History and Philosophy of Mathematics**
   The main focus for this branch of research is to study the history of mathematics with respect to the philosophical ideas embedded within selected topics in logic, number theory, algebra, trigonometry, geometry and astronomy.

3. **Mathematics Education**
   This field covers studies related to theories and practices in mathematics education for the enhancement of mathematical understanding. Amongst the approaches to be investigated are: constructivism; mastery; cooperative; collaborative; contextual learning and problem-based learning. Other pedagogical perspectives include cognitive-guided instruction; zone of proximal development; values, beliefs and epistemology related to mathematics education; development of mathematical thinking; impact of integration of technology in mathematics teaching; technology design in mathematics teaching; and current issues or policies related to mathematics education.
The primary objective of this laboratory is to provide assistance in the design of experiments and sample surveys, advice on statistical analysis, and expertise on recent developments in statistical research.

The laboratory has several staff members with a common training requirement, hence can provide courses targeted to specific needs. The short courses include wide range of topics, essential materials for the inexperienced user of statistics to technically advanced materials for experienced statisticians. Faculty members and graduate students from any discipline in UPM and any other institutions are welcome for consultation. We also provide consultations, short courses & trainings for research design, data analysis, statistical computing & graphics, and scientific computing. Some of our predesignated courses/workshop:

**Statistics:**
1. Complex Data Mining
2. Handling Missing Data
3. Sampling Techniques
4. Regression Analysis
5. Survival / Reliability Analysis
6. Extreme Value Analysis
7. Bayesian Statistics
8. Multivariate Analysis
9. Time Series Analysis
10. Exploratory Data Analysis
11. Statistical Modelling

**Statistical Computing:**
1. R
2. SAS
3. STATA
4. Minitab
5. SPSS

**Scientific Computing:**
1. High Performance Computing (HPC)
2. Parallel Programming / Computing
3. Python
4. MATLAB
5. C / C++

**Scientific Writing:**
LaTeX

**We also offer on request courses or trainings based on your needs and within our expertise.**
1. **Graduate Research Fellowship (GRF)**

**Requirements**

- Application is open to all Malaysian students who are currently enrolled in the PhD programme provided that they fulfil the following conditions:
  
  i. The current status of study is “Good Standing”. Candidate with “Defer” and “Probation” is not eligible to apply.
  
  ii. Candidate has not exceeded 3 semesters of study for Masters and 5 semesters of study for PhD at the time of application.
  
  iii. Candidate is not enrolled on the split postgraduate programme at UPM.
  
  iv. Candidate has obtained a CGPA of 3.00 and above for Science/Technical cluster and 3.50 for Arts/Social Science cluster at the Bachelor level.

- Application is also open to Government/Private Servant who gets approval for study leave without pay.

**Duration of fellowship**

i. PhD programme: Maximum 2 semesters

ii. Masters programme: Maximum 2 semesters

**Provisions of fellowship**

i. Successful applicant will be provided with a monthly stipend of RM1,700 for PhD and RM1,500 for Masters.

ii. Successful applicant will be exempted from paying tuition fees.

**Responsibilities**

i. Recipient shall assist in teaching/tutoring/supervising final year students and/or laboratory classes for period of 6 hours/week for PhD and 4 hours/week for Masters and including during semester breaks.

ii. Recipient is required to record his/her daily attendance at the University. At the end of every month, the record must be verified by the Supervisor and must be submitted to the Postgraduate Studies Officer at the faculty/institute.

iii. Recipient is required to submit or publish two (2) journal articles for PhD and publish one (1) journal article for Masters before completing his/her studies.
2. **International Graduate Research Fellowship (iGRF)**

**Requirements**

- Application is open to all international students of UPM who are currently enrolled for PhD programme by research provided that they fulfil the following conditions:

  1. The current status of study is “Good Standing”. Candidate with “Defer” and “Probation” status is not eligible to apply.
  2. Candidate must be at the end of the second semester of their PhD programme.
  3. Candidate is not enrolled on the split postgraduate programme at UPM.
  4. Candidate must have at least two (2) cited journal articles published or accepted.
  5. Candidate must have a research proposal.
  6. Candidate must have progress report from advisor/supervisor.

**Duration of fellowship**

- PhD programme: Maximum 2 semesters

**Provisions of fellowship**

A successful applicant will receive the following:

  1. A monthly stipend amounting to RM1,700
  2. Tuition fees waiver for each semester for the duration of the fellowship amounting to the following:

    - Medical Science - RM1,700
    - Science - RM1,400
    - Social Science - RM1,200

**Responsibilities**

  1. Recipient shall assist in teaching/tutoring/supervising final year students and/or laboratory classes for period of 6 hours/week including during semester breaks.
  2. Recipient is required to record his/her daily attendance at the University. At the end of every month, the record must be verified by the Supervisor and must be submitted to the Postgraduate Studies Officer at the faculty/institute.
  3. Recipient is required to submit or publish two (2) journal articles before completing his/her studies.
3. Graduate Research Assistant (GRA)

Requirements

- Application is open to all postgraduate students (with thesis) who are currently registered as a postgraduate student at UPM provided that they fulfil the following conditions:
  
  i. The current status of study is “Good Standing”.
  ii. Candidate with “Defer” “Probation” and “Defer” status is not eligible to apply.

- Application must be approved by the Advisor/Chairman of the Supervisory Committee and/or the Head of Project and Dean of Faculty / Director of Institute.

- This sponsorship is funded by the Supervisor/Member of the Supervisory Committee’s research grant and should have at least RM10,00.00 balance at the time of appointment of GRA.

- Successful applicant is not allowed to receive any other financial support or scholarship/fellowship and should not be engaged in any type of employment.

Provisions of fellowship

Successful applicant will be given monthly allowance (depending on total number of hours allocated for assisting in teaching) as follow:

  i. RM1,125.00 (3 teaching hours per week)
  ii. RM1,300.00 (4 teaching hours per week)
  iii. RM1,500.00 (6 teaching hours per week)

- Successful applicant will be exempted from paying tuition fees.

Responsibilities

Recipient is required to assist in teaching/tutoring/supervising final year undergraduate students and/or as demonstrators for a period of time as mentioned in provisions of fellowship.
4. **Special Graduate Research Allowance Scheme (S-GRA)**

**Requirements**

- This scheme is open to all postgraduate students (with thesis) who are currently registered as postgraduate student at UPM.

- Application for this scheme can be made at any time throughout the semester provided the student is registered for that semester.

- Each of application must be supported by the Advisor/Chairman of the Supervisory Committee or/and by the Head of Research Project and by the Dean of Faculty/Director of Institute where the research grant is allocated.

- This scheme is funded by the Supervisor/Member of the Supervisory Committee’s research grant and amount of research grant must be sufficient to pay the monthly allowance throughout the period of appointment.

- Applicants who receive scholarship/financial assistance or employed with a monthly emolument of less than RM1,000.00 are also eligible to apply for this scheme. However the total amount of stipend plus monthly emolument shall not exceed RM1,500/month for Masters and RM1,700/month for PhD students. Applicants are responsible to provide written evidence of emolument received to the School of Graduate Studies together with the application form.

- Application for extension must be made every semester and permitted up to:
  - Masters: Maximum 6 semesters
  - PhD: Maximum 10 semesters
  (Student can apply for extension beyond the above mentioned period with recommendations and justifications from the supervisor)

**Provisions of fellowship**

Successful applicant will be provided with a monthly stipend of RM1,700.00 for PhD and RM1,500.00 for Masters.

**Responsibilities**

Students who receive this scheme are not required to assist in teaching/tutoring/demonstrating, but shall assist in research work as instructed by the Supervisor.
5. **International Graduate Student Scholarship (IGSS)**

This scholarship is created to provide financial incentive for students with excellent academic record from countries within Southeast Asia, Central Asia, Middle East and Africa. Priority is given to applicants from academic staff members of institutions which have MoU with UPM and intending to conduct research in priority areas relevant to UPM or Malaysia.

**Terms and Condition**

i. **Number of Scholarships Awarded**
   - Depending on application quality and funding availability.

ii. **Duration and Commencement of Scholarship**
   - The scholarship will cover up to 6 semesters of study subject to annual review of student’s academic progress.

iii. **Financial Terms of the Scholarship**
   - The scholarship covers up to 50% (amounting up to RM20,000.00) of the tuition fees for the duration of 6 semesters.

iv. **Eligibility**
   - The applicant must fulfil the general application requirements for international students.
   - The applicant must be the holder of a Master’s degree with a minimum CGPA of 3.5.
   - The applicant is intending to conduct research in priority areas relevant to UPM or Malaysia.
   - The applicant is not a recipient of any other forms of financial support.
   - The applicant has published at least one article in an academic journal and/or received strong recommendation from academic institutions (e.g Vice Chancellor, Dean, Director).
   - Priority is given to applicants from academic institutions which have MoU with UPM.

v. **How to apply**
   - The application form can be downloaded from School of Graduate Studies (SGS) website [http://www.sgs.upm.edu.my](http://www.sgs.upm.edu.my)
   - The applicant must identify and communicate with their potential advisor, and submit the application through the advisor.
   - The scholarship application must be submitted together with the admission application.
   - The completed application form must be submitted to SGS.
6. **Putra Alumni Scholarship Scheme (PASS)**

This scholarship is created to encourage International UPM Alumni and their children to study at the graduate level in UPM as a form of loyalty scheme.

**Terms and Condition**

i. **Number of Scholarships Awarded**
   - Depending on application quality and funding availability.

ii. **Duration and Commencement of Scholarship**
   - The scholarship will cover up to 2 years for Masters and 3 years of PhD.
   - This scholarship is only open to new students enrolled beginning First Semester 2016/2017.

iii. **Financial Terms of the Scholarship**
   - For UPM’s Alumni children:
     - The scholarship covers up to 50% (amounting up to RM20,000.00) of the tuition fees for the duration of study.
   - For UPM Alumni:
     - Recipients will be granted a 10% tuition fees waive.

iv. **Eligibility**
   - The applicant must fulfil the general application requirements for international students.
   - The applicant must hold a Bachelor degree or Master’s degree with a minimum CGPA of 3.500
   - Applicable for programs by research only.
   - The applicant must conduct research in priority areas relevant to UPM or Malaysia.
   - The applicant is not a recipient of any other forms of financial support.
   - The applicant has published at least one article in an academic journal and/or received strong recommendation from academic institutions (e.g Vice Chancellor, Dean, Director).
   - Priority will be given to applicants from developing countries in which UPM holds strategic importance.
v. How to apply
- The application form can be downloaded from School of Graduate Studies (SGS) website [http://www.sgs.upm.edu.my](http://www.sgs.upm.edu.my)
- The applicant must identify and communicate with their potential advisor, and submit the application through the advisor.
- The scholarship application must be submitted together with the admission application.
- The completed application form must be submitted to SGS.
## POSTGRADUATE FEES

### DOCTOR OF PHILOSOPHY

<table>
<thead>
<tr>
<th>Semesters</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Semester</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; – 3&lt;sup&gt;rd&lt;/sup&gt; Semester</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; Semester</th>
<th>5&lt;sup&gt;th&lt;/sup&gt; and Subsequent Semesters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>RM2,668.50</td>
<td>RM2,412.50</td>
<td>RM1,850.00</td>
<td>RM2,850.00</td>
</tr>
<tr>
<td>International</td>
<td>RM7,118.50</td>
<td>RM5,162.50</td>
<td>RM4,600.00</td>
<td>RM5,100.00</td>
</tr>
</tbody>
</table>

### MASTER OF SCIENCE

<table>
<thead>
<tr>
<th>Semesters</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Semester</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; – 3&lt;sup&gt;rd&lt;/sup&gt; Semester</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; Semester</th>
<th>5&lt;sup&gt;th&lt;/sup&gt; and Subsequent Semesters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>RM2,106.00</td>
<td>RM1,850.00</td>
<td>RM1,350.00</td>
<td>RM1,850.00</td>
</tr>
<tr>
<td>International</td>
<td>RM6,506.00</td>
<td>RM4,250.00</td>
<td>RM3,750.00</td>
<td>RM4,000.00</td>
</tr>
</tbody>
</table>
For further details on Postgraduate Studies, please contact:

**Unit of Postgraduate Studies**
Ms. Nurul Hidayah Samadi  
Institute for Mathematical Research (INSPEM)  
Universiti Putra Malaysia  
43400 UPM Serdang, Selangor  
MALAYSIA  
Phone: +603-89466859/6878  
Fax: +603-89466973  
Email: sam_hidayah@upm.edu.my  
Website: www.inspem.upm.edu.my

**Dean**
School of Graduate Studies  
Zone 4, Off Jalan Stadium  
Universiti Putra Malaysia  
43400 UPM Serdang, Selangor  
MALAYSIA  
Phone: +603-89464255  
Fax: +603-89464233  
Email: sgs@upm.edu.my  
Website: www.sgs.upm.edu.my