**FACULTY OF SCIENCE**

**UNIVERSITY SCHOLARS PROGRAM (USP)**

**INDEPENDENT STUDY MODULE (ISM) APPLICATION FORM/CONTRACT**

**Instructions**

1. **This form is to be completed by students applying to read ISMs after detailed discussion with their supervisors. Please refer to** [**http://www.usp.nus.edu.sg/curriculum/academic-structure/independent-study-module#what-are-isms**](http://www.usp.nus.edu.sg/curriculum/academic-structure/independent-study-module%23what-are-isms%20) **for further information on ISMs.**
2. **This proposal must be completed and endorsed by student’s Home Department, and submitted to the Dean’s Office before the deadline as stipulated by the Dean’s Office. Please refer to** [**https://myportal.nus.edu.sg/studentportal/sci/ug/Academics\_USP.html**](https://myportal.nus.edu.sg/studentportal/sci/ug/Academics_USP.html%20) **for registration procedures of newly-designed, ride-on and UROPS-based ISMs respectively.**
3. **Please refer to “Notes: Part (A)” on Page 3 for details on how to fill up Section B of this application form.**
4. **Upon approval of the ISM, the Dean’s Office will contact students (via email) to collect a photocopy of the approved application form. Please refer to “NOTES: Part (B)” on Page 3 for further instructions on module registration.**
5. **Please note that this form will be rejected and voided if it is not filled in accordance to the instructions.**

|  |  |
| --- | --- |
| **(A) Student Particulars** | |
| **Name** | Lee Jin Wee |
| **Matric No.** | A0140556J |
| **Subject Major(s)** | Life Sciences |
| **Contact No.** | 8455 0535 |

|  |  |  |
| --- | --- | --- |
| **(B) Information on Proposed Independent Study Module *(Contract between supervisor & student)***  ***Please refer to the notes: Part (A) on Page 3 for details on how to fill up this section of the form.*** | | |
| **Semester and Acad. Year 1** | | Sem 1 of AY 2017/2018 |
| **Project Title 2** | | Genomic analysis of Loqs isoform-specific rescue experiments on small RNA production in *Drosophila melanogaster* |
| **Module Title** | | **-** |
| **Module Type 4** | | Newly-designed (Individual Study) |
| **Module Level 5** | | Level 3000 |
| **Department Module Code 6** | | - |
| **No. of MCs 7** | | 4 MCs |
| **Name of Main Supervisor** | | Greg Tucker-Kellogg |
| **Department of Main Supervisor** | | Department of Biological Sciences |
| **Name & Department/Institution of Co-Supervisor (if any)** | | - |
| **Project application no.** | | **-** |
| **UIS Module Code** | | ***[Only for Dean’s Office Use]*** |
| **Module/Project Description**  RNA silencing commonly refers to the series of pathways which negatively regulate gene expression through the guiding of endoribonuclease complexes to their target transcripts by small RNAs. This mechanism has been shown to play a crucial role in gene regulation and cell development. The model organism *Drosophila* *melanogaster* expresses a multitude of small RNAs which have several classifications based on their length, structure, function and origin.  One class of small RNAs are the micro RNAs (miRNAs). Before being able to act as guide RNAs, the canonical hairpin structure of the pre-miRNAs are processed in the cytoplasm by the Dicer complex, resulting in a mature miRNA. Recent studies have shown that the Dicer complex associates with a family of co-factors known as Loquacious (Loqs). There are 3 Loqs isoforms present in *Drosophila*, Loqs-PA, -PB, and -PD and play unique roles in the RNA silencing pathway.  This project will work entirely on a *Drosophila* siRNA sequencing dataset generated by Professor Katsutomo Okamura’s lab. In this dataset, Drosophila cell lines which lack the Loqs gene locus were rescued with each of the 3 isoforms, in addition to both positive and negative controls. Initial data analysis performed in 2015 found that the Loqs-PD rescue resulted in an approximately 25-fold increase in hairpin miRNA (hpRNA) expression.  The object of this project is to therefore streamline the data pipeline, update the small iRNA seq mapping to the most recent build of the *Drosophila* genome Release 6 and subsequently re-analyze the data based on new mappings and classifications. We hope this re-analysis and update can surface novel and meaningful findings from the existing dataset. As such, this project will be entirely computational, involving mainly the use of Bash (Unix Shell), with a sparing of use of Python and R. | | |
| **Contact Hours (per week)**  *The weekly workload for a 4-MC regular module adds up to 10 hours. e.g. 2 hours lecture; 1 hour tutorial; 7 hours preparatory work. However, ISMs should be more demanding both in quality and quantity and could include: seminar/Lecture (by student), interactive (discussion/tutorial) sessions etc.* | A minimum of 15 hours will be spent on this project per week, consisting mainly of individual research with occasional discussions with fellow undergraduate and post-graduate researchers in the lab. In addition, weekly/ fortnightly meetings will be held with Prof Greg himself to monitor the progress of the project | |
| **Mode of Assessment**  *Please provide the detailed % breakdown for each continuous assessment [CA] component as well as the final examination (if any). For e.g.:*  *Seminar Presentations: 10%* Short Essay/project: 20% *Quizzes : 10%*  *Mid term test: 20%*  *Final examination: 40%* | *Please note that the assessment for UROPS-based ISM should be the same as that for non-USP students.*  *You may leave this part blank if it is an UROPS-based ISM.*  *Fill in this part only if it is a newly designed or ride-on ISM. Newly-designed ISMs require at least 20% for written test component*  *Ride-on ISMs require at least 40% for final exam and at least 20% Ride-On Component*  Mid-term presentation: 20%  Final presentation: 20%  Final Report: 60% | |

|  |  |
| --- | --- |
| **(C) Supervisor-Student Agreement to the above contract in Section B**  *If a student has more than one supervisor, only the signature of the* ***main supervisor*** *is required.* | |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name & Signature of Supervisor Date  *Note: Must be signed by the main supervisor who*  *holds an NUS staff ID* | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature of Student Date |

**For Department’s Use Only. NOT to be filled by students**

|  |  |
| --- | --- |
| **(D) To be completed only if ISM is NEWLY-DESIGNED** | **Signature of Approving**  **Head of Department** |
| **The above Newly-Designed\* ISM will be counted towards:**  ***\* Please check the appropriate boxes below only if students are applying to read NEWLY-DESIGNED ISMs.***  Level 3000 Essential Requirements in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [please specify major]  Level 3000 Elective Requirements in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  [please specify major]  Level 4000 Essential Requirements in ­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  [please specify major]  Level 4000 Elective Requirements in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  [please specify major]  Unrestricted (Free) Elective  *Note:*  *- Students who complete* ***ISMs that ride onto existing regular department modules*** *are deemed to have passed the requirements of that particular regular department module on which the ISM rides.* ***Specifying what the ISM will be counted towards (above) is not necessary.***  *- Students who complete* ***UROPS-based ISMs*** *are deemed to have passed the requirements of the UROPS module. How the UROPS module may be used to count towards students’ major requirements will depend on the respective departments’ existing policy on the use of UROPS for fulfilling major requirements (as applicable to all Science students).* ***Specifying what the ISM is counted towards (above) in not necessary.*** | **To be countersigned for the respective Newly-Designed ISM to be counted towards** |
|  |
| **Name & Signature** |
| **Name & Signature** |
| **Name & Signature** |
| **Name & Signature** |
| **Name & Signature** |

|  |  |
| --- | --- |
| **(E) Approval from Head of Department (or representative) and Life Sciences Undergraduate Programme Committee (if applicable)** | |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name & Signature of HOD Date | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name & Signature of Life Sciences Undergraduate Programme Committee Representative & Date |

|  |  |
| --- | --- |
| **(F) For Dean’s Office Use Only** | |
| **Name (Associate Dean)** | A/P Chua Tin Chiu |
| **Signature and Date** |  |
| **Decision** | APPROVED / NOT APPROVED ***[delete as appropriate]*** |

**Notes: Part A – Instructions for filling up Section B of Application Form**

**1** Please specify the Semester and Academic Year in which the ISM is being registered for (e.g. ***Sem 1 of AY2010/11****)*

**2** A project title needs to be provided for **all ISMs** (i.e students proposing to read UROPS-based ISMs, newly-designed ISMs and ride-on ISMs.)

**4** Please specify the type of ISM: either ***“Ride-on”*** or ***“Newly-designed (Individual Study)”*** or ***“Newly- designed (Group Study)”*** or ***“UROPS-based”***

**5** Specifying the level (either ***“level 3000”*** or ***“level 4000”***) at which the ISM is pitched is only applicable for **newly-designed and UROPS-based ISMs.** This should correspond to the level of difficulty of the ISM.

**6**This field is only applicable for **ride-on ISMs** (e.g. department module code = **PC3132**) and **UROPS-based ISMs** (e.g. department module code = **LSM3288** for students reading a level 3000 project in the Life Sciences); Module code need not be provided if students are proposing to read newly-designed ISMs.

**7** All newly-designed ISMs should be assigned 4MCs. MCs assigned for ride-on ISMs and UROPS-based ISMs will correspond to that of the regular department module or UROPS module on which the ISM rides. For e.g., if a student reads PC3132 (4MCs) as an ISM, the MCs for the ride-on ISM should also be 4MCs.

**Notes: Part B – Module Registration**

**(A) Students reading UROPS-based ISMs**

* Students need **not** bid for these modules (via CORS).
* Upon approval of the ISM application, the Dean’s Office will pre-allocate the UROPS module (e.g. LSM3288) to the student and one bid point will be deducted from the student’s Programme Account in CORS but the USP ISM code (UISXXXXR) will not be reflected in CORS and IVLE.
* Students are to check their module records to verify that the UROPS module that they have been registered is correct. Any discrepancies/errors should be surfaced to the Dean’s Office immediately.

**(B) Students reading Ride-on ISMs**

* Students must **bid (via CORS)** for the regular department module on which the ISM rides.
* Upon approval of the ISM application, the Dean’s Office will assign the **UISxxxxR Independent Study Module** code to the regular department module that the student has registered for via CORS.
* Students are to note that module code-assignments will only be completed by the end of week 4 and the USP ISM code (UISXXXXR) will not be reflected in IVLE.

**(C) Students reading Newly-designed ISMs**

* Students need **not** bid for these modules (via CORS).
* Upon approval of the ISM application, the Dean’s Office will pre-allocate the Independent Study Module (UISXXXX) to students and one bid point will be deducted from the student’s Programme Account in CORS.
* Students must reserve 4MC of workload during bidding (via CORS) so that pre-allocation can be completed successfully by the Dean’s Office.
* After pre-allocation, students are to check their module records to verify that the module they have been registered is correct. Any discrepancies/errors should be surfaced to the Dean’s Office immediately.