**Course: 352-629 Thesis (PhD) 9 PLOs with 14 CLOs**

| **Program learning outcomes (PLOs)** |  | **Course Learning Outcomes (CLOs)**  | **Teaching and learning approach** | **Student assessment** |
| --- | --- | --- | --- | --- |
| PLO1 To generate morally and ethically sound research. | ⚫ | 1. Students can develop morally and ethically sound proposal and thesis. 2. Students can build necessary information sheet and consent form for study participants.  | 1. Guidelines or templates of documents for ethical consideration from Human Research Ethics Committee of Faculty of Medicine, Prince of Songkla University. 2. Discussion with peers and instructors in courses of Epidemiology II and Research methodology.3. Comments and suggestions from thesis advisor on moral and ethical issues in thesis proposal. | 1. Proposal examination using rubric assessment.2. Letter of ethical approval before data collection.3. Thesis examination using rubric assessment. |
| PLO2 To design research studies in response to the needs of stakeholders. | ⚫ | 3. Students can design a study which has taken into account the needs of stakeholders.  | 1. Discussion about possible research topic in relation to the stakeholders’ consideration in Research methodology course.2. Comments and suggestions from thesis advisor on study design taken into account the needs of stakeholders. | 1. Proposal examination using rubric assessment.  |
| PLO3 To use information technology to search health-related information for research. | ⚫ | 4. Students can execute internet search of research articles related to thesis proposal. 5. Students can use appropriate softwares and software packages for data analysis in their proposal and thesis | 1. Discussion with thesis advisor on relevant issues of literature review for appropriate literature search.
2. Suggestion from thesis advisor for searching suitable software for data analysis of student’s research.
 | 1. Proposal examination using rubric assessment.2. Thesis examination using rubric assessment. |
| PLO4 To relate theoretical health concepts into research through critical appraisal of the evidence. | ⚫ | 6. Students can critically examine the relevant literatures of proposal and thesis.7. Students can relate health concepts and state of problems into his/her proposal and thesis.  | 1. Discussion with thesis advisor integrating health concepts into background, rationale, methodology, discussion, and implication in proposal and thesis. | 1. Proposal examination using rubric assessment.2. Thesis examination using rubric assessment. |
| PLO5 To generate community-based, community-oriented, community-participating field research with skills in leadership and problem-solving. | ⚫ | 8. Students can create community-based, community-oriented, or community-benefitting field research outputs | 1. Discussion with thesis advisor on how to get participation of the community based on thesis proposal.1. Discussion with thesis advisor on how to get participation of the community and/or stakeholders based on thesis proposal. | 1. Proposal examination using rubric assessment.2. Thesis examination using rubric assessment. |
| PLO6 To appropriately appraise research findings amidst the evolving state of knowledge in epidemiology. | ⚫ | 9. Students can assess appropriate statistical methods to conduct data analysis of research.10. Students can assess the research results critically. | 1. Assignment on analysis of existing dataset and interpretation of analytical outputs as a process of qualifying examination.2. Thesis advisor’s supervision on proper statistical methods to analyse the data during proposal development for qualifying examination and thesis proposal. | 1. Qualifying examination using rubric assessment.2. Thesis examination using rubric assessment. |
| PLO7 To demonstrate mastery of principles of epidemiology and statistics in relation to health research. | ⚫ | 11. Students can defend their research with integration of the principles of Epidemiology and Statistics in thesis properly.  | 1. Discussion with thesis advisor integrating the principles of epidemiology and statistics into background, rationale, methodology, analysis, discussion, and implication in proposal and thesis. | 1. Proposal examination using rubric assessment.2. Thesis examination using rubric assessment. |
| PLO8 To analyze big or complex data with clear presentation advocating appropriate usage of the findings. | ⚫ | 12. Students can master the analysis of big data or complex data with appropriate methods of data analysis.  | 1. Preparation and discussion of analysis and analytical outputs in scientific manuscripts from the thesis and thesis with thesis advisor. | 1. Qualifying examination2. Manuscript from thesis accepted for publication in a peered reviewed journal.3. Comprehensive examination4. Thesis examination |
| PLO9 To produce high-quality research article(s) translatable to policy and practice. | ⚫ | 13. Student can compose a thesis that has enough novelty, contains health policy implications, and is approved at various stages of internal and external peer review. 14. Students can compose high-quality research manuscripts evaluated by accepted publication in peer-review journal.  | 1. Supervision by thesis advisor on an appropriate research topic, proposal development, data collection and analysis as well as thesis writing. 1. Supervision by thesis advisor on an appropriate research topic, proposal development, data collection and analysis as well as thesis writing. | 1. Manuscript from thesis accepted for publication in a peered reviewed journal.2. Thesis examination1. Manuscript from thesis accepted for publication in a peered reviewed journal.2. Thesis examination |

**Ph.D.**

**Matrixes PLOs and CLOs of Thesis**

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| --- | --- |
|  | **CLOs** |
| PLOs |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | ⚫ | x | x |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | ⚫ |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| 3 | ⚫ |  |  |  | x | x |  |  |  |  |  |  |  |  |  |
| 4 | ⚫ |  |  |  |  |  | x | x |  |  |  |  |  |  |  |
| 5 | ⚫ |  |  |  |  |  |  |  | x |  |  |  |  |  |  |
| 6 | ⚫ |  |  |  |  |  |  |  |  | x | x |  |  |  |  |
| 7 | ⚫ |  |  |  |  |  |  |  |  |  |  | x |  |  |  |
| 8 | ⚫ |  |  |  |  |  |  |  |  |  |  |  | x | x |  |
| 9 | ⚫ |  |  |  |  |  |  |  |  |  |  |  |  |  | X |