

Module Handbook:

Course Structure and Curriculum
for Doctoral Program of Environmental Science
By Course Pathway – 2020 Curricula



School of Postgraduate Studies
Diponegoro University

2022



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at the School of Postgraduate Studies, Diponegoro University
2020

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1. Introduction

1.1. About the Study Program

Carry out development that does not damage the environment and concern about the next generation have actually mandated by the State Policy Guidelines Republic of Indonesia in 1973. However, at implementation level, the implementation of development is a more focused aspect on economic growth and ignore the environmental as well as social aspects. This resulted in the depletion of natural resources, biodiversity, increasing pollution and environmental damage that trigger the environmental disasters such as floods, landslides and drought. Meanwhile, the various effects caused by global warming and climate change threat human life. In the era of globalization, free trade and regional autonomy, environmental aspects become central issues, in addition to the issue of depletion of energy reserves and declining water quality and quantity.

To respond the above issues, education that is able to instil knowledge, ethics and discovered a new theory in environmental management is necessary. Doctoral Program of Environmental Science (PDIL) Undip stands with license letter from Director General of Higher Education. 2782/D/T/2008 and pioneered by the Manager and Lecturer of Master Program of Environmental Science Diponegoro University, is facilitated to achieve that goal. Doctoral Program of Environmental Science establishment is in line with the vision towards the Research University.

1.2. Accreditation

Doctoral Program of Environmental Science had been accredited by Badan Akreditasi Nasional Perguruan Tinggi (National Accreditation Board for Higher Education) of Republic of Indonesia, ISO, and still in processed by ASIIN.

1.3. Key member of staff

Doctoral program

2. Title, Affiliation, and Language

2.1. Title

Doctoral program of Environmental Science leads to a Doctor in Environmental Science with the Indonesian title: Dr (*Doctor*).

2.2. Affiliation

Since 2006, this program becomes member of SEE (Sustainable Energy and Environment) Forum. SEE Forum is Asia Pacific Academic and Science and Technological Forum that brings forward dialogue on global climate and energy security issues.

2.3. Language

The program is conducted in Indonesian, but could also provide English-based learning, projects, theses, and etc by the request from international students.

3. Academic profile

3.1. Objective

The graduates of Doctoral Program of Environmental Science are expected to have capabilities in: (a) developing concept of science and technology in the field of environmental through research; (b) managing, leading, and developing a research program; (c) developing professional performance with interdisciplinary approach.

3.2. General structure of the programme

Doctoral Program of Environmental Science is set at 50 credits (Sistem Kredit Semester/SKS) or equivalent to 180 ECTS.

Doctoral Program consists of the following elements:

- Matriculation courses (No Credits).
- Compulsory courses (Credits: 50 SKS/ 180 ECTS), including the dissertation, research supervisory courses, and examination.

Doctoral Program of Environmental Science set the maximum study period is seven years or fourteen semesters, whereas the student could be dropped out.

3.3. Career opportunities

Doctoral Program of Environmental Science qualifies students to become professionals within business, management, and research functions and/ or areas such as:

- Academia as a Lecturer within universities.
- Researcher in any research institutions, varying from government's research body to the think tank institution.
- As a leading innovator and researcher in industries in improving environmentally sustainable product processes, promoting circular business, improving waste management, developing breakthrough solution and remediation technologies in achieving better environmental condition.
- As a consultant and/or advisor in national or international level with strong basis in environmental management and environmental protection.
- Public administration in municipalities working in environmental monitoring, assessment, and protecting local's region from any environmentally unsustainable land utilization.
- Policy maker and advocate working in policy assessment and development in promoting the value of sustainable development within the government (national and local), private organization, or international NGOs.

4. Description of Learning Outcome

The learning outcome from the academic structure in Doctoral Program of Environmental Science through the By Course pathway are as follows:

- Able to analyze, develop and apply the conceptual and theoretical thinking of environmental science in various environmental research.
- Able to parse theoretical abstractions in environmental science and its application through mastery of environmental management concepts along with rules and policies.
- Able to carry out stages in the environmental research process through problem identification, risk analysis, management concept, alternative solution, data analysis, conclusion and recommendation that are functional and efficient.
- Able to demonstrate scientific attitude and think critically in carrying out duties professionally through appreciation of religion, culture, humanity, morals and ethics.

5. Admission requirements

5.1. Education Requirements

Doctoral Program of Environmental Science is a multi-entry program. Entering the program, candidates should have graduated in any disciplines with:

- Holding a master's degree from any disciplines.
- Prior degree must be gained from B accredited universities (overseas graduates, diplomas must be equalized by the Directorate General of Higher Education).
- Minimum GPA of 3.00/4.00.
- Have working experiences in environment-related field would be a plus.

5.2. Language requirements

There are no minimum language requirements to enrol to this program.

5.3. Supplementary document requirements

Prospective students must prepare the following documents:

- Academic recommendation from Professor/Doctor (min. 2).
- Letter of guarantee for tuition fees.
- Synopsis of research proposals max. 5 pages.

5.4. Admission batch

Prospective students could enrol into two batch of admission per year. The first batch is for the prospective student who is preferring to enrol in the Odd Semester (July), whilst the second batch is for those who prefer to start their academic journey in the Even Semester (February).

5.5. Admission system

Detailed admission schedule, timeline, and submission system could be accessed through Diponegoro University's admission website.

- For national prospective students: <https://pmb.undip.ac.id/>
- For international prospective students: <https://pmb.undip.ac.id/international/graduate-program/>

5.6. Tuition fee

Prospective students are required to pay the tuition fee which shall be paid early at every semester. The amount might be differed from year to year. For the updated information, prospective students could access the information through this link: <http://dil.pasca.undip.ac.id/tuition-fee-2/>.

5.7. Scholarship

Diponegoro University provides a Master to Doctorate scholarship program which open every year. The updated information could be accessed through Institute for Research and Community Service's website. The opening for the 2020 batch information could be accessed through this link: <https://lppm.undip.ac.id/2020/01/13/pengumuman-penerima-program-pendidikan-magister-doktor-menuju-sarjana-unggul-universitas-diponegoro-pmdsu-undip-tahun-2020/>

6. Graduation requirements

To be qualified to be honoured the Doctoral Degree from Doctoral Program of Environmental Science, students must be fulfilled the publication and language requirements.

6.1. Publication requirements

Complying with the Indonesian Government regulation, the students must be able to publish at least three publications before being qualified to be promoted as a Doctor in Environmental Science, with the detail as follows:

- One academic article published as a conference proceeding from an international conference
- One academic article published in a national reputable journal
- One academic article published in an international reputable journal

6.2. Language for graduation requirements

To be able to graduate, students must be able to achieve language proficiency test with a minimum score of 500 for TOEFL ITP test or equivalent to 5.5 for IELTS test.

7. Structure of the programme

7.1. Matriculation

Due to various background of new students, it is required to have matriculation knowledge to give basic understanding of environment. Thus, Doctoral Program of Environmental Science is offering the Matriculation Course in the beginning of the semester. The subjects that would be taught in this course are as follows:

No	Code	Courses	Credits	
			SKS	ECTS
1	-	Basic Understanding of Ecology	NC	NC
2	-	Human Ecology	NC	NC
3	-	Industrial Ecology	NC	NC
4	-	Spatial and Environmental Dimensions	NC	NC
5	-	Dimensions of Pollution and Environmental Damage	NC	NC
Total			NC: No Credits	

7.2. Compulsory courses

By Course pathway in the Doctoral Program of Environmental Science offers compulsory courses as follows:

No	Code	Course	Credits	
			SKS	ECTS
1	LCIL 9131	Philosophy of Science and Research Methodology	3	9
2	PCIL 9132	Ecology and Global Environmental Change	3	9
3	PCIL 9133	System Analysis and Environmental Modelling	3	9
4	PCIL 9231	Proposal Writing	3	15
5	PCIL 9232	Research 1	3	10
6	PCIL 9233	Technique of Proposal Writing and Scientific Article	3	8
7	PCIL 9352	Research 2	5	30
8	PCIL 9452	Research 3	5	18
9	PCIL 9431	Scientific Publications 1	3	12
10	PCIL 9571	Scientific Publications 2	7	18
11	PCIL 9532	Seminar of Dissertation Research Result	3	12
12	PCIL 9631	Eligibility Exam	3	18
13	PCIL 9662	Dissertation Defence	6	12
Total			50	180

The detail of each course would be described in the following sub sections:

7.2.1. Philosophy of Science and Research Methodology

Module designation	Philosophy of Science and Research Methodology
Module level, if applicable	-
Code, if applicable	LCIL 9131
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Prof. Sudharto Prawata Hadi, MES, Ph.D.
Lecturer	<ol style="list-style-type: none"> 1. Prof. Sudharto Prawata Hadi, MES, Ph.D. 2. Prof. Dr. Ir. Purwanto, DEA 3. Dr. Dra. Henna Rya Abdurachim, Apt., MES
Language	<i>Indonesian and English</i>
Relation to curriculum	Students are able to understand the position of knowledge, study of knowledge and scientific perspectives and philosophy of science through lectures and discussion activities
Type of teaching, contact hours	<ul style="list-style-type: none"> • Regular meeting with Lecturer 16 times (40 hours with total contact hour per teaching is 2.5 hours weekly for 16 weeks). This activity consists of Lecture: 80 minutes; Q&A: 20 minutes; Discussion: 30 minutes; Presentation: 20 minutes) • Independent work on reading materials and literature review (48 hours, 3 hours weekly for 16 weeks) • Preparing paper and final personal assignment (96 hours, 6 hours weekly for 16 weeks) • Peer group discussion (24 hours, 1.4 hour weekly for 16 weeks) • Personal work on reflecting the course's gained knowledge to the student's research topic (\pm17 hours, 1.1 hours weekly for 16 weeks) <p>Total contact hours in 1 semester = 225 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face Lecturers in class (4.44 hours) • Independent work (reading books, materials, papers, literature review, etc. : 5.33 hours) • Preparing paper and structured assignments (doing homework or assignments given by lecturers : 10.67 hours)

	<ul style="list-style-type: none"> • Peer group discussion (2.67 hours) • Personal work on reflecting the course's gained knowledge to the student's research topic (1.89 hours) <p>Total workload for one ECTS = 25 hours</p>
Laboratory work	This course requires no laboratory work
Credit points	3 SKS which equivalent to 9 ECTS
Requirements according to the examination regulations	Minimum attendance of lectures 75%
Recommended prerequisites	-
Module objectives/ intended learning outcomes	<ul style="list-style-type: none"> • Have the ability to explore, integrate, and construct various sources of knowledge in the reality of life into the scope of science • Have the ability to select and build linkages between the uniqueness of various local knowledge for scientific development according to the rules of science • Able to describe the relationship between knowledge, philosophy and philosophy of science from sociology, epistemology, and axiology.
Content	<ul style="list-style-type: none"> • The Philosophy of Science course discusses • The position of knowledge, habits, beliefs of a person or group of people in science, knowledge of sources of knowledge, scientific methods, scientific results, scientific attitudes, sources of truth and limitations of science • The role of science and technology in the development of human civilization • This course trains students to think logically, critically, comprehensively, and contemplatively • Understand the interrelationship between various sources of knowledge in the past with the present and the future in the development of science and technology • The integration of axiological anthropology in building artifacts as scientific products.
Reading Materials	<p>Amaratunga, D., Baldry, D., Sarshar, M., & Newton, R. (2002). Quantitative and qualitative research in the built environment: application of "mixed" research approach. Work study.</p> <p>Howell, K. E. (2012). An introduction to the philosophy of methodology. Sage.</p> <p>Kothari, C. R. (2004). Research methodology: Methods and techniques. New Age International.</p> <p>Snyder, H. (2019). Literature review as a research</p>

	methodology: An overview and guidelines. Journal of business research, 104, 333-339.
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7.2.2. Ecology and Global Environmental Change

Module designation	Ecology and Global Environmental Change
Module level, if applicable	-
Code, if applicable	PCIL 9132
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Prof. Dra. Norma Afiati, M.Sc., Ph.D.
Lecturer	<ol style="list-style-type: none"> 1. Prof. Dra. Norma Afiati, M.Sc., Ph.D. 2. Prof. Ir. Didi Dwi Anggoro, M.Eng., Ph.D. 3. Dr. Ir. Hermawan, DEA.
Language	Indonesian and English
Relation to curriculum	-
Type of teaching, contact hours	<ul style="list-style-type: none"> • Regular meeting with Lecturer 16 times (40 hours with total contact hour per teaching is 2.5 hours weekly for 16 weeks). This activity consists of Lecture: 80 minutes; Q&A: 20 minutes; Discussion: 30 minutes; Presentation: 20 minutes) • Independent work on reading materials and literature review (48 hours, 3 hours weekly for 16 weeks) • Preparing paper and final personal assignment (96 hours, 6 hours weekly for 16 weeks) • Peer group discussion (24 hours, 1.4 hour weekly for 16 weeks) • Personal work on reflecting the course's gained knowledge to the student's research topic (\pm17 hours, 1.1 hours weekly for 16 weeks) <p>Total contact hours in 1 semester = 225 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face lecturers in class (4.44 hours) • Independent work (reading books, materials, papers, literature review, etc. : 5.33) • Preparing paper and structured assignments (doing homework or assignments given by lecturers : 10.67 hours) • Peer group discussion (2.67 hours) • Personal work on reflecting the course's gained knowledge to the student's research topic (1.89 hours) <p>Total workload for one ECTS = 25 hours</p>
Laboratory Work	This course requires no laboratory work

Credit points	3 SKS which equivalent to 9 ECTS
Requirements according to the examination regulations	Minimum attendance of lectures 75%
Recommended prerequisites	-
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to describe the history of ecological development • Able to describe the interrelationships of living things and their environment • Able to describe important basic concepts in an ecosystem.
Content	<ul style="list-style-type: none"> • The Ecology and Global Environmental Change course is a compulsory subject in the Environmental Science Doctoral study program • Explanation of the history and ecological approach • The concept of environmental factors and their effects on living things • Habitats and niches • Responses and adaptations, • Populations, communities, ecosystems and global environmental changes.
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • Open book and close book • Multiple choice, case study, interview, practice
Media employed	Power point, YouTube, website
Reading materials	<p>Adger, W. N., Benjaminsen, T. A., Brown, K., & Svarstad, H. (2001). Advancing a political ecology of global environmental discourses. <i>Development and change</i>, 32(4), 681-715.</p> <p>Buechler, S., & Hanson, A. M. S. (Eds.). (2015). <i>A political ecology of women, water and global environmental change</i> (p. 99). New York: Routledge.</p> <p>Jasanoff, S. (2018). 8. Science and Norms in Global Environmental Regimes. In <i>Earthly goods</i> (pp. 173-197). Cornell University Press.</p> <p>Kasperson, J. X., Kasperson, R. E., Turner, B. L., Hsieh, W., & Schiller, A. (2022). Vulnerability to global environmental change. In <i>The social contours of risk</i> (pp. 245-285). Routledge.</p>

7.2.3. System Analysis and Environmental Modelling

Module designation	System Analysis and Environmental Modelling
Module level, if applicable	
Code, if applicable	PCIL 9133
Subtitle, if applicable	
Courses, if applicable	
Semester(s) in which the module is taught	1 st Semester
Person responsible for the module	Prof. Dr. Ir. Purwanto, DEA
Lecturer	1. Prof. Dr. Ir. Purwanto, DEA 2. Prof. Dr. Sutrisno Anggoro, M.S.
Language	<i>Indonesian and English</i>
Relation to curriculum	Compulsory
Type of teaching, contact hours	<ul style="list-style-type: none"> • Regular meeting with Lecturer 16 times (40 hours with total contact hour per teaching is 2.5 hours weekly for 16 weeks). This activity consists of Lecture: 80 minutes; Q&A: 20 minutes; Discussion: 30 minutes; Presentation: 20 minutes) • Independent work on reading materials and literature review (48 hours, 3 hours weekly for 16 weeks) • Preparing paper and final personal assignment (96 hours, 6 hours weekly for 16 weeks) • Peer group discussion (24 hours, 1.4 hour weekly for 16 weeks) • Personal work on reflecting the course's gained knowledge to the student's research topic (± 17 hours, 1.1 hours weekly for 16 weeks) <p>Total contact hours in 1 semester = 225 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face lecturers in class (4.44 hours) • Independent work (reading books, materials, papers, literature review, etc : 5.33 hours) • Preparing paper and structured assignments (doing homework or assignments given by lecturers : 10.67 hours) • Peer group discussion (2.67 hours) • Personal work on reflecting the course's gained knowledge to the student's research topic (1.89 hours) <p>Total workload for one ECTS = 25 hours</p>
Laboratory Work	Students taking this course have the chance to utilize the computer laboratory within the Diponegoro University to

	practice the environmental modelling and simulation
Credit points	3 SKS which equivalent to 9 ECTS
Requirements according to the examination regulations	Minimum attendance of lectures 75%
Recommended prerequisites	
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to identify, formulate and analyze complex engineering problems on integrated systems based on analytical, computational or experimental approaches. • Mastering the principles and techniques of integrated system design with an environmental systems approach. • Able to research and investigate complex engineering problems on integrated systems using basic engineering principles and by carrying out research, analysis, data interpretation and information synthesis to provide solutions.
Content	<ul style="list-style-type: none"> • This course studies systems and system modeling, especially systems in the environment • This course studies the process/steps of mathematical modeling for problems in environmental systems • The process of model verification and validation, to finding solutions or model analysis.
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • Open book and close book • Multiple choice, case study, interview, practice
Media employed	Power point, YouTube, website
Reading Materials	<p>Lee, G. Y., Hickie, I. B., Occhipinti, J. A., Song, Y. J. C., Skinner, A., Camacho, S., ... & Freebairn, L. (2022). Presenting a comprehensive multi-scale evaluation framework for participatory modelling programs: A scoping review. <i>PloS one</i>, 17(4), e0266125.</p> <p>Rahmati, O., Kornejady, A., Samadi, M., Deo, R. C., Conoscenti, C., Lombardo, L., ... & Bui, D. T. (2019). PMT: New analytical framework for automated evaluation of geo-environmental modelling approaches. <i>Science of the total environment</i>, 664, 296-311.</p> <p>Refsgaard, J. C., van der Sluijs, J. P., Højberg, A. L., & Vanrolleghem, P. A. (2007). Uncertainty in the environmental modelling process—a framework and guidance. <i>Environmental modelling & software</i>, 22(11), 1543-1556.</p> <p>Skidmore, A. (2017). <i>Environmental modelling with GIS and remote sensing</i>. CRC Press.</p>

7.2.4. Proposal Writing

Module designation	Proposal Writing
Module level, if applicable	-
Code, if applicable	PCIL 9231
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	2 nd
Person responsible for the module	Principal Supervisor
Lecturer	Principal Supervisor and Co-Supervisor
Language	<i>Indonesian and English</i>
Relation to curriculum	Compulsory
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (16 hours, 1 weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hour weekly for 16 weeks) • Independent work on reading materials and literature review (144 hours, 4 hours weekly for 16 weeks) • Independent work on writing proposal draft (160 hours, 6.5 hours weekly for 16 weeks) • Writing progress report (39 hours, 2.4375 hours weekly for 16 weeks) <p>Total hours in 1 semester = 375 hours</p>
Student Wrokload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (1.07 hours) • Face-to-face discussion with Co-Supervisor (1.07 hours) • Independent work (reading books, materials, papers, literature, etc. : 9.6 hours) • Writing proposal draft (introduction, research method, research framework, data analysis techniques, etc.: 10.67 hours) • Writing progress report (improvement, evaluation, constraints, etc.: 2.6 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	This course requires no laboratory work
Credit points	3 SKS which equivalent to 15 ECTS

Requirements according to the examination regulations	The principal supervisor and co-supervisor have been approved the research proposal
Required and recommended prerequisites for joining the module	The students have taken and passed the philosophy of science and research methodology course
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to compose a complete research proposal in accordance with thesis guidelines • Able to present a thesis proposal in the form of a seminar
Content	<ul style="list-style-type: none"> • Mentoring about literature study, research topic selection, and research title • Discussion and mentoring about research background, research questions, and research objectives. • Discussion about state of the art and novelty • Discussion and mentoring about research design, research framework, and research methods.
Exams and assessment formats	Seminar and in-depth interview
Study and examination requirements	The final grade in the module consists of 80% in-depth interviews, 20% participation in monitoring and evaluating the progress report of the dissertation proposal. Students are required to submit a portfolio of progress reports and a dissertation draft according to the targeted stages to their respective supervisors.
Reading list	<p>Agus Salim. (2006). Teori dan paradigma penelitian sosial. Yogyakarta: Tiara Wacana.</p> <p>Bryman, Alan. (2001). Social research methods. New York: Oxford University Press.</p> <p>Glatthorn, A. A., & Joyner, R. L. (2005). Writing the winning thesis or dissertation: A step-by-step guide. Corwin Press.</p> <p>Miles, Matthew B. & Huberman, A. Michael. (1992). Analisis data kualitatif, (Penterjemah: Tjetjep Rohendi Rohidi). London: Sage Publication. (Buku asli diterbitkan pada tahun 1984).</p> <p>Sudjana. (2002). Metoda statistika. Bandung: Tarsito.</p> <p>Sugiyono. (2007). Metode penelitian pendidikan: pendekatan kuantitatif, kualitatif, dan R & D. Bandung: ALFABETA</p> <p>Sumadi Suryabrata. (1983). Metodologi penelitian. Jakarta: Rajawali.</p>

7.2.5. Research 1

Module designation	Research 1
Code, if applicable	PCIL 9232
Semester(s) in which the module is taught	3 rd
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	<i>Indonesian and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Progress Report, Presentation, Discussion.</i>
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (16 hours, 1 hour weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hour for 16 weeks) • Independent work on reading materials and literature review (80 hours, 5 hours weekly for 16 weeks) • Developing research proposal (\pm106 hours, 8 hours weekly for 16 weeks) • Preparing progress report (16 hours, 1 hour weekly for 16 weeks) • Preparing presentation materials (16 hours, 1 hour weekly for 16 weeks) <p>Total hours in 1 semester = 250 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (1.6 hours) • Face-to-face discussion with Co-Supervisor (1.6 hours) • Independent work (reading books, materials, papers, literature review, etc. : 8 hours) • Developing proposal draft (introduction, research method, research framework, data analysis techniques, etc.: 10.6 hours) • Preparing progress report (improvements, challenges, constraints, etc.: 1.6 hours) • Preparing presentation materials for discussion with supervisors (1.6 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs

Credit points	<i>3 SKS which equivalent to 10 ECTS</i>
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Required and recommended prerequisites for joining the module	Existing competencies in literature review and scientific writing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to compile research plan. • Able to compile proposal dissertation.
Content	<ul style="list-style-type: none"> • Concepts of Abiotic, • Biotic and Culture at dissertation research in the field of environmental science; • Problem statements in dissertation research; • Formulation of objectives; • Formulation of research hypotheses; • Literature Review; • Originality of dissertation research; • State of the art and novelty; • Research methodology in dissertation research; • Objects and variables of dissertation research; • Portfolio of progress reports of the dissertation proposal.
Exams and assessment formats	Mid-semester progress report assessment, final progress report assessment.
Study and examination requirements	Requirements for successfully passing the module The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.

Reading list	<p>Modul of Writing Dissertation DES</p> <p>Kasperson, J. X., Kasperson, R. E., Turner, B. L., Hsieh, W., & Schiller, A. (2022). Vulnerability to global environmental change. In <i>The social contours of risk</i> (pp. 245-285). Routledge.</p> <p>Louv, R., & Fitzpatrick, J. W. (2012). <i>Citizen science: Public participation in environmental research</i>. Cornell University Press.</p> <p>Pohl, C. (2005). Transdisciplinary collaboration in environmental research. <i>Futures</i>, 37(10), 1159-1178.</p> <p>Svarstad, H., Petersen, L. K., Rothman, D., Siepel, H., & Wätzold, F. (2008). Discursive biases of the environmental research framework DPSIR. <i>Land use policy</i>, 25(1), 116-125.</p>
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7.2.6. Technique of Proposal Writing and Scientific Article

Module designation	Technique of Proposal Writing and Scientific Article
Module level, if applicable	
Code, if applicable	PCIL 9233
Subtitle, if applicable	
Courses, if applicable	
Semester(s) in which the module is taught	2 nd
Person responsible for the module	Prof. Dr. Ir. Hadiyanto, S.T., M.Sc., IPU
Lecturer	<ol style="list-style-type: none"> 1. Prof. Dr. Ir. Hadiyanto, S.T., M.Sc., IPU 2. Prof. Dr. Istadi, S.T., M.T.
Language	<i>Indonesian and English</i>
Relation to curriculum	<i>Compulsory</i>
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (16 hours, 1 hour weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hour weekly for 16 weeks) • Independent work on reading materials and literature review (64 hours, 4 hours weekly for 16 weeks) • Independent work on writing manuscript draft (104 hours, 6.5 hours weekly for 16 weeks) <p>Total hours in 1 semester = 200 hours</p>

Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Prinsipal Supervisor (2 hours) • Face-to-face discussion with Co-Supervisor (2 hours) • Independent work (reading books, papers, literature review, etc. : 8 hours) • Independent work on developing proposal draft (introduction, research method, research framework, data analysis techniques, etc.: 13 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	This course requires no laboratory work
Credit points	3 SKS which equivalent to 8 ECTS
Requirements according to the examination regulations	Minimum attendance of lectures 75%
Required and recommended prerequisites for joining the module	The students have taken and passed the philosophy of science and research methodology course
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to understand systematic guidelines for writing scientific articles • Able to compile scientific articles
Content	<ul style="list-style-type: none"> • Analysis of research topics, • Data processing techniques using origin software, • Compilation of bibliography and citations using mendeley software, • Software introduction to check the level of plagiarism.
Exams and assessment formats	Minimum attendance of lectures 75%
Study and examination requirements	The final grade in the module consists of 50% of scientific article draft and 50% of in-depth interviews
Reading list	<p>Badley, G. F. (2022). Common—Reading—Placing—Writing. Qualitative Inquiry, 10778004221077711.</p> <p>Day R.A., 1998. How to write & publish a scientific paper. Oryx Press. Arizona</p> <p>Hailman J.P., Strier K.B, 2006. Planning, Proposing, and Presenting Science Effectively, 2nd Edition. Cambridge University Press. Cambridge.</p> <p>McMillan V.E. 2001. Writing papers in the Biological Sciences. Bedford/St. Martins. New York.</p> <p>Raimes, A. (1983). Techniques in teaching writing. Oxford University Press, 200 Madison Ave., New York, NY 10016 (ISBN-0-19-434131-3, \$5.95).</p>

7.2.7. Research 2

Module designation	Research 2
Code, if applicable	PCIL 9352
Semester(s) in which the module is taught	3 rd
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	<i>Indonesian and English</i>
Relation to curriculum	<i>Compulsory</i>
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) • Reading materials and literature review (160 hours, 10 hours weekly for 16 weeks) • Developing data collection strategy (160 hours, 10 hours weekly for 16 weeks) • Developing data analysis strategy (160 hours, 10 hours weekly for 16 weeks) • Preparing progress report (78 hours, 4.875 hours weekly for 16 weeks) • Writing dissertation draft (128 hours, 8 hours weekly for 16 weeks) <p>Total hours in 1 semester = 750 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (1.07 hours) • Face-to-face discussion with Co-Supervisor (1.07 hours) • Reading books, materials, literature review, etc. (5.33 hours) • Developing research conceptual and pathway framework in data collection (5.33 hours) • Developing research conceptual and pathway framework in data analysis (5.33 hours) • Preparing progress report (2.6 hours) • Writing dissertation draft (4.27 hours) <p>Total workload for one ECTS : 25</p>

Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	5 SKS which equivalent to 30 ECTS
Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Required and recommended prerequisites for joining the module	Existing competencies in research methodology and scientific writing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to design research according to scientific research methodology. • Able to carry out scientific research for doctoral program dissertation.
Content	<ul style="list-style-type: none"> • Operational definitions, indicators, and research variables; • Theoretical framework and research concept framework; • Population, sample & research variables; • Techniques of data collection; • Methods of research data analysis; • Portfolio of progress reports of the dissertation draft.
Exams and assessment formats	Mid-semester progress report assessment, final progress report assessment.
Study and examination requirements	Requirements for successfully passing the module The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.

<p>Reading list</p>	<p>Modul of Writing Dissertation DES</p> <p>Glatthorn, A. A., & Joyner, R. L. (2005). Writing the winning thesis or dissertation: A step-by-step guide. Corwin Press.</p> <p>Kasperson, J. X., Kasperson, R. E., Turner, B. L., Hsieh, W., & Schiller, A. (2022). Vulnerability to global environmental change. In <i>The social contours of risk</i> (pp. 245-285). Routledge.</p> <p>Louv, R., & Fitzpatrick, J. W. (2012). <i>Citizen science: Public participation in environmental research</i>. Cornell University Press.</p> <p>Pohl, C. (2005). Transdisciplinary collaboration in environmental research. <i>Futures</i>, 37(10), 1159-1178.</p> <p>Randolph, J. (2009). A guide to writing the dissertation literature review. <i>Practical Assessment, Research, and Evaluation</i>, 14(1), 13.</p> <p>Svarstad, H., Petersen, L. K., Rothman, D., Siepel, H., & Wätzold, F. (2008). Discursive biases of the environmental research framework DPSIR. <i>Land use policy</i>, 25(1), 116-125</p>
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7.2.8. Research 3

Module designation	Research 3
Code, if applicable	PCIL 9452
Semester(s) in which the module is taught	4 th
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	<i>Indonesian and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Progress Report, Presentation, Discussion.</i>
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 weekly for 16 weeks) • Data analysis (128 hours, 8 hours weekly for 16 weeks) • Developing research result discussion (128 hours, 8 hours weekly for 16 weeks) • Preparing progress report (32 hours, 2 hours weekly for 16 weeks) • Preparing presentation materials (34 hours, 2.125 hours weekly for 16 weeks) • Developing dissertation report (64 hours, 4 hours weekly for 16 weeks) <p>Total hours in 1 semester = 450 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face with Principal Supervisor (1.78 hours) • Face-to-face with Co-Supervisor (1.78 hours) • Validating research conceptual and pathway framework in data analysis (7.1 hours) • Validating research conceptual and pathway framework in data collection (7.1 hours) • Preparing progress report (improvements, challenges, constraints, etc.: 1.78 hours) • Preparing presentation materials (1.89) • Developing dissertation report (3.56 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	5 SKS which equivalent to 18 ECTS

Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Required and recommended prerequisites for joining the module	Existing competencies in data analysis and scientific writing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to display research results visually and in writing. • Able to perform data analysis of scientific research results. • Able to draw conclusions on research results.
Content	<ul style="list-style-type: none"> • Primary and secondary data collection; • Presentation of data in the form of tables and graphs; • Research data processing; Analysis of data processing results; • Compilation of conclusions on the dissertation; • Portfolio of progress reports of the dissertation draft.
Exams and assessment formats	Mid-semester progress report assessment, complete dissertation draft, eligibility test.
Study and examination requirements	Requirements for successfully passing the module The final grade in the module is composed of 70% performance on complete draft dissertation, 30% performance on the eligibility test. Students must submit a complete dissertation draft and are required to take the eligibility test as a minimum achievement to pass.
Reading list	<p>Modul of Writing Dissertation DES</p> <p>Allison, B., & Race, P. (2004). The student's guide to preparing dissertations and theses. Routledge.</p> <p>Arrows, F. (2008). The authentic dissertation. London: Routledge.</p> <p>Joyner, R. L., Rouse, W. A., & Glatthorn, A. A. (2018). Writing the winning thesis or dissertation: A step-by-step guide. Corwin press.</p> <p>Ramlaul, A. (2020). Dissertation Structure and Presentation. In Medical Imaging and Radiotherapy Research: Skills and Strategies (pp. 363-380). Springer, Cham.</p>

7.2.9. Scientific Publication 1

Module designation	Scientific Publication 1
Code, if applicable	PCIL 9431
Semester(s) in which the module is taught	4 th
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	Indonesian and English
Relation to curriculum	Compulsory
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) • Preparing manuscript (160 hours, 10 hours weekly for 16 weeks) • Preparing presentation materials (32 hours, 2 hours weekly for 16 weeks) • Finding suitable conference (44 hours, 2.75 hours weekly for 16 weeks) <p>Total hours in 1 semester = 300 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (2.67 hours) • Face-to-face discussion with Co-Supervisor (2.67 hours) • Writing manuscript from zero to camera ready version (13.33 hours) • Preparing presentation materials for discussion with supervisors (2.67 hours) • Finding suitable conference (international level, proceeding selection, etc.: 3.67 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	There is no required laboratory work for this course. On the other hand, student taking this course might utilize the Diponegoro University's Library, Manuscript Consultation Center from LPPM, and the School of Postgraduate Studies' Library
Credit points	3 SKS which equivalent to 12 ECTS
Requirements according to the examination regulations	<i>Collecting of progress report for scientific publication and the proof</i>

Required and recommended prerequisites for joining the module	<i>Existing competencies in scientific writing</i>
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to compile scientific articles based on research results. • Able to communicate research results in written and or oral form.
Content	<ul style="list-style-type: none"> • Identification of national and international scientific publications; • Progress reports of writing scientific publications; • Progress reports of the submission process to the seminar/journal.
Exams and assessment formats	Mid-semester progress report assessment, final progress report assessment.
Study and examination requirements	<p>Requirements for successfully passing the module</p> <p>The final grade in the module is composed of 60% performance on progress reports, 20% the kinds of publication (seminar or journal), 20% the publication level (national or international). Students must have a complete draft of publication as a minimum reached to pass.</p>
Reading list	<p>Grech, V. and Cuschieri, S., 2018. Write a scientific paper (WASP)-a career-critical skill. <i>Early Human Development</i>, 117, pp.96-97.</p> <p>Black, M., 2018. <i>Critical thinking: An introduction to logic and scientific method</i>. Pickle Partners Publishing.</p> <p>Jirge, P.R., 2017. Preparing and publishing a scientific manuscript. <i>Journal of Human Reproductive Sciences</i>, 10(1), p.3.</p> <p>Parija, S.C. and Kate, V., 2017. Why write a scientific research paper. In <i>Writing and publishing a scientific research paper</i> (pp. 3-8). Springer, Singapore.</p> <p>Paul, J. and Criado, A.R., 2020. The art of writing literature review: What do we know and what do we need to know?. <i>International Business Review</i>, 29(4), p.101717.</p> <p>Alspach, J.G., 2017. Writing for publication 101: Why the abstract is so important. <i>Critical Care Nurse</i>, 37(4), pp.12-15.</p>

7.2.10. Scientific Publication 2

Module designation	Scientific Publication 2
Code, if applicable	PCIL 9571
Semester(s) in which the module is taught	5 th
Person responsible for the module	Head of Study Program; Promotor & Co-Promotor.
Language	English
Relation to curriculum	Compulsory
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (16 hours, 1 hours weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hours weekly for 16 weeks) • Preparing manuscript (128 hours, 8 hours weekly for 16 weeks) • Finalizing research result for publication (128 hours, 8 hours weekly for 16 weeks) • Preparing presentation materials (32 hours, 2 hours weekly for 16 weeks) • Proofreading (64 hours, 4 hours weekly for 16 weeks) • Choosing and selecting reputable journal (32 hours, 2 hours weekly for 16 weeks) • Submitting and reviewing article submission to reputable journal (34 hours, 2.125 hours weekly for 16 weeks) <p>Total hours in 1 semester = 450 hours</p>
Student Workload for one ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (0.89 hours) • Face-to-face discussion with Co-Supervisor (0.89 hours) • Writing manuscript from zero to camera ready version (7.11 hours) • Personal work on finalizing research result data analysis for publication (7.11 hours) • Preparing presentation materials (1.78 hours) • Proofreading the final version of manuscript (3.56 hours) • Choosing and selecting reputable journal (1.78 hours) • Submitting and reviewing article submission to reputable journal (1.89 hours) <p>Total workload for one ECTS : 25 hours</p>

Laboratory Work	There is no required laboratory work for this course. On the other hand, student taking this course might utilize the Diponegoro University's Library, Manuscript Consultation Center from LPPM, and the School of Postgraduate Studies' Library
Credit points	7 SKS which equivalent to 18 ECTS
Requirements according to the examination regulations	Collecting of progress report for scientific publication and the proof
Required and recommended prerequisites for joining the module	Existing competencies in scientific writing for international publication.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to compile scientific articles for international publication based on research results. • Able to communicate research results in written and or oral form in international journals or seminars.
Content	<ul style="list-style-type: none"> • Identification of international scientific publications (seminar and journal); • Progress reports of writing scientific publications; • Progress reports of the submission process to the seminar/journal.
Exams and assessment formats	Mid-semester progress report assessment, final progress report assessment.
Study and examination requirements	Requirements for successfully passing the module The final grade in the module is composed of 60% performance on progress reports, 20% the kinds of publication (seminar or journal), 20% the publication level (reputable or not). Students must have a complete draft of publication as a minimum reached to pass.

<p>Reading list</p>	<p>Grech, V. and Cuschieri, S., 2018. Write a scientific paper (WASP)-a career-critical skill. <i>Early Human Development</i>, 117, pp.96-97.</p> <p>Black, M., 2018. <i>Critical thinking: An introduction to logic and scientific method</i>. Pickle Partners Publishing.</p> <p>Jirge, P.R., 2017. Preparing and publishing a scientific manuscript. <i>Journal of Human Reproductive Sciences</i>, 10(1), p.3.</p> <p>Parija, S.C. and Kate, V., 2017. Why write a scientific research paper. In <i>Writing and publishing a scientific research paper</i> (pp. 3-8). Springer, Singapore.</p> <p>Paul, J. and Criado, A.R., 2020. The art of writing literature review: What do we know and what do we need to know?. <i>International Business Review</i>, 29(4), p.101717.</p> <p>Alspach, J.G., 2017. Writing for publication 101: Why the abstract is so important. <i>Critical Care Nurse</i>, 37(4), pp.12-15.</p>
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7.2.11. Seminar of Dissertation Research Result

Module designation	Seminar of Dissertation Research Result
Module level, if applicable	-
Code, if applicable	PCIL 9532
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	5 th Semester
Person responsible for the module	Principal supervisors
Lecturer	Principal Supervisors and Co-supervisors
Language	<i>Indonesian and English</i>
Relation to curriculum	-
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) • Data analysis (80 hours, 5 hours weekly for 16 weeks) • Developing research result discussion (96 hours, 6 hours weekly for 16 weeks) • Preparing progress report (44 hours, 2.75 hours weekly for 16 weeks) • Preparing presentation materials (16 hours, 1 hour weekly for 16 weeks) <p>Total hours in 1 semester = 300 hours</p>
Student Workload for one ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (2.67 hours) • Face-to-face discussion with Co-Supervisor (2.67 hours) • Evaluating in major research data analysis (processing, quantify, optimization analysis (6.67 hours) • Evaluating in data explanation for result discussion (5.87 hours) • (8 hours) • Preparing progress report (improvements, challenges, constraints, etc.: 3.67 hours) • Preparing presentation materials (1.33 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	Students taking this course have the chance to utilize the laboratory within the Diponegoro University according to each student's research needs
Credit points	3 SKS which equivalent to 12 ECTS

Requirements according to the examination regulations	Participate in monitoring and evaluating progress of the preparation of the dissertation organized by the Study Program; Collecting of portfolio of progress report for dissertation.
Recommended prerequisites	Existing competencies in data analysis and scientific writing.
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> • Able to display research results visually and in writing. • Able to perform data analysis of scientific research results. • Able to draw conclusions on research results.
Content	<ul style="list-style-type: none"> • Primary and secondary data collection; • Presentation of data in the form of tables and graphs; • Research data processing; • Analysis of data processing results; • Compilation of conclusions on the dissertation; • Portfolio of progress reports of the dissertation draft.
Study and examination requirements and forms of examination	The final grade in the module is composed of 80% performance on portfolio of progress reports, 20% participation in monitoring and evaluating. Students must submit a portfolio of progress reports and a draft dissertation according to the targeted stages as a minimum achievement to pass.
Reading Materials	<p>Modul of Writing Dissertation DES</p> <p>Allison, B., & Race, P. (2004). The student's guide to preparing dissertations and theses. Routledge.</p> <p>Arrows, F. (2008). The authentic dissertation. London: Routledge.</p> <p>Joyner, R. L., Rouse, W. A., & Glatthorn, A. A. (2018). Writing the winning thesis or dissertation: A step-by-step guide. Corwin press.</p> <p>Ramlaul, A. (2020). Dissertation Structure and Presentation. In Medical Imaging and Radiotherapy Research: Skills and Strategies (pp. 363-380). Springer, Cham.</p>

7.2.12. Eligibility Exam

Module designation	Eligibility Exam
Module level, if applicable	-
Code, if applicable	PCIL 9631
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	Principal supervisor
Lecturer	<ul style="list-style-type: none"> • Principal supervisor • Co-supervisor
Language	<i>Indonesian and English</i>
Relation to curriculum	Students are able to eligibility examination
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (32 hours, 2 hours weekly for 16 weeks) • Discussion with Co-Supervisor (32 hours, 2 hours weekly for 16 weeks) • Preparing dissertation full report (192 hours, 12 hours weekly for 16 weeks) • Preparing presentation (160 hours, 10 hours weekly for 16 weeks) • Preparing progress report (34 hours, 2.125 hours weekly for 16 weeks) <p>Total hours in 1 semester = 450 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (1.78 hours) • Face-to-face discussion with Co-Supervisor (1.78 hours) • Evaluating for full dissertation version (10.67 hours) • Preparing presentation materials for final assessment of complete dissertation by supervisors and judges (8.89 hours) • Preparing progress report (1.89 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	There is no required laboratory work for this course.
Credit points	3 credits which is equivalent to 18 ECTS
Requirements according to the examination regulations	<p>Minimum attendance of lectures 75%</p> <p>Further detail on examination regulation could be accessed through this link: http://dil.pasca.undip.ac.id/dissertation-feasibility-exam/</p>
Recommended prerequisites	-

Module objectives/intended learning outcomes	-
Content	-
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • Open book and close book • Journal publications, case studies, interviews
Media employed	Power point, YouTube, website
Reading Materials	<p>Happell, B. (2009). Presenting with precision: Preparing and delivering a polished conference presentation. <i>Nurse Researcher</i>, 16(3).</p> <p>Jackson, D., Davidson, P. M., & Usher, K. (2022). Preparing for Examination. In <i>Successful Doctoral Training in Nursing and Health Sciences</i> (pp. 119-131). Springer, Cham.</p> <p>Matteson, S. M., & DeLozier, R. W. (2022). Insights Into Undertaking a Three-Article Dissertation. In <i>Methodological Innovations in Research and Academic Writing</i> (pp. 240-259). IGI Global.</p>

7.2.13. Dissertation Defence

Module designation	Dissertation Defence
Module level, if applicable	
Code, if applicable	PCIL 9662
Subtitle, if applicable	
Courses, if applicable	
Semester(s) in which the module is taught	6 th Semester
Person responsible for the module	<ul style="list-style-type: none"> • Main advisory lecturer
Lecturer	<ul style="list-style-type: none"> • Supervisor 1 • Supervisor 2
Language	<i>Indonesian and English</i>
Relation to curriculum	-
Type of teaching, contact hours	<ul style="list-style-type: none"> • Discussion with Principal Supervisor (16 hours, 1 hour weekly for 16 weeks) • Discussion with Co-Supervisor (16 hours, 1 hour weekly for 16 weeks) • Revising and finalizing dissertation full report (80 hours, 5 hours weekly for 16 weeks) • Proofreading and copy-editing dissertation (80 hours, 5 hours weekly for 16 weeks) • Preparing presentation (72 hours, 4.5 hours weekly for 16 weeks) • Administrative work (36 hours, 2.25 hours weekly for 16 weeks) <p>Total hours in 1 semester = 300 hours</p>
Student Workload for One ECTS	<ul style="list-style-type: none"> • Face-to-face discussion with Principal Supervisor (1.33 hours) • Face-to-face discussion with Co-Supervisor (1.33 hours) • Revising and finalizing dissertation full report (6.67 hours) • Proofreading and copy-editing dissertation (6.67 hours) • Preparing presentation final assessment of complete dissertation by supervisors and judges (6 hours) • Improvement for full dissertation, peer discussion, and administrative work (3 hours) <p>Total workload for one ECTS : 25 hours</p>
Laboratory Work	There is no required laboratory work for this course
Credit points	6 SKS or equivalent to 12 ECTS

Requirements according to the examination regulations	Minimum attendance of lectures 75% Further detail on the requirements for taking Doctoral Defence could be accessed through this link: http://dil.pasca.undip.ac.id/dissertation-defence/
Recommended prerequisites	-
Module objectives/intended learning outcomes	-
Content	-
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • Open book and close book • Journal publications, case studies, interviews
Media employed	Power point, YouTube, website
Reading Materials	<p>Madsen, D. (1983). Successful Dissertations and Theses: A Guide to Graduate Student Research from Proposal to Completion.</p> <p>Matteson, S. M., & DeLozier, R. W. (2022). Insights Into Undertaking a Three-Article Dissertation. In Methodological Innovations in Research and Academic Writing (pp. 240-259). IGI Global.</p> <p>Rockinson-Szapkiw, A. J., & Spaulding, L. S. (2014). Navigating the doctoral journey: A handbook of strategies for success. Rowman & Littlefield.</p> <p>Tribe, R., & Marshall, C. (2020). Preparing for a conference, doctoral or professional presentation. <i>Counselling Psychology Review</i>, 35(2), 30-39.</p>

Appendix 1 Recommended Academic Progression

Semester 1				
No	Code	Course	Credits	
			SKS	ECTS
1	LCIL 9131	Philosophy of Science and Research Methodology	3	9
2	PCIL 9132	Ecology and Global Environmental Change	3	9
3	PCIL 9133	System Analysis and Environmental Modelling	3	9
Total Credit Semester			9	27
Semester 2				
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9231	Proposal Writing	3	15
2	PCIL 9232	Research 1	3	10
3	PCIL 9233	Technique of Proposal Writing and Scientific Article	3	8
Total Credit Semester			9	33
Semester 3				
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9352	Research 2	5	30
Total Credit Semester			5	30
Semester 4				
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9452	Research 3	5	18
2	PCIL 9431	Scientific Publication 1	3	12
Total Credit Semester			8	30
Semester 5				
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9571	Scientific Publication 2	7	18
2	PCIL 9532	Seminar of Dissertation Research Result	3	12
Total Credit Semester			10	30
Semester 6				
No	Code	Course	Credits	
			SKS	ECTS
1	PCIL 9631	Eligibility Exam	3	18
2	PCIL 9662	Dissertation Defence	6	12
Total Credit Semester			9	30
Total Credit			50	180