INSTRUCTIONAL ANALYSIS, SYLLABUS
&
ONE SEMESTER LESSON PLAN

SCIENTIFIC WRITING TECHNIQUES (KIM1391 2(2-0)+LH)

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FACULTY OF MATHEMATICS AND NATURAL SCIENCES
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INSTRUCTIONAL ANALYSIS

Learning Outcomes:

1. Students can communicate concepts and results of field/research practice through oral writing and communication skills, using modern literature search methods to find information on a topic and issue related to chemistry, and
2. Students can produce responsible work through teamwork

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4. Can present the results of the final project in writing, orally, and prepare good and interesting posters

3. Can evaluate scientific journal articles that describe novelty: Able to search primary, up-to-date, and relevant literature

2. Can evaluate research methods, literature reviews, review reference literature able to evaluate valid and repeated research procedures, write units and symbols based on the International System; Able to make research records (logbooks) carefully; able to analyze and interpret data and prepare effective illustrations

1. Can apply spelling Indonesian; able to apply chemical nomenclature and terminology; Able to write basic words, derivative words, effective sentences, and complete paragraphs

ONE SEMESTER LESSON PLAN

Course Name/Code	:	Scientific Writing Techniques / KIM1391
Semester/Credit	:	Even (Semester 6)/2(2-0) + LH
Description	:	The Scientific Writing Techniques Course is a compulsory course for students of the Undergraduate Chemistry Study Program, Department of Chemistry, FMIPA IPB which is related to the Indonesian courses that have been given in semester 1. The Scientific Writing Engineering course is given to 6th-semester students with the subject matter coverage being (1) Spelling, (2) Chemical Nomenclature and Grammar, (3) Words, Sentences, and Paragraphs, (4) Research Methods, Literature Review, and How to Review Literature, (5) Research Procedures, Drawing Examples, Units and Symbols, (6) Making Research Notes, (7) Analysis, Data Interpretation, and Illustration, (8) Preparation of Scientific Journal Articles, (9) Oral and Poster Presentation, (10) Literature Search Techniques, (11) Translation Techniques, (12) Management of Reference Sources, (13) and Preparation of Student Creativity Program Proposals. The learning process of this course uses active learning through lectures in class, *small group discussions*, *cooperative learning*, collaborative learning, *and project-based* learning (PjBL). The language of instruction used in this lecture is Indonesian.
Prerequisites course	:	IPB1106
Learning Outcomes	:	1. Students are able to communicate concepts and results of field practice/final project (thesis) / other scientific papers through oral writing and communication skills, using good and correct Indonesian and modern literature search methods to find information about a topic and issue related to chemistry 2. Students are able to produce responsible work through teamwork
Division/Field	:	Chemistry
Lecturers	:	1. Dr. Henny Purwaningsih, SSi, MSi (Coordinator) 2. Prof. Ir. Suminar S Achmadi, PhD 3. Dr. Budi Arifin, SSi, MSi

Learning Outcomes

Learning Outcomes	A1	A2	B1	B2	B3	B4	C1	C2
A. Knowledge	✕	✕						
B. Specific skills			✕	✕				
C. General attitudes and skills							✕	✕

I. ONE SEMESTER LESSON PLAN

WEEK OF	EXPECTED FINAL CAPABILITY	SUBJECT MATTER (TEACHING MATERIALS)	LEARNING METHODS	ASSESSMENT CRITERIA (INDICATORS)	SCORE WEIGHTING (%)
1	2	3	4	5	6
1	Can apply spelling in Indonesian	Spelling Indonesian	Lecture, Class Interactive Discussion	Good and correct application of spelling in Indonesian	
2	Can apply chemical nomenclature and terminology	Chemical Nomenclature and Terminology	Spelling quiz, lectures, interactive discussions	Application of nomenclature and terminology in the correct Indonesian	
3	Can write basic words, derivative words, effective sentences, and complete paragraphs	Words, Sentences, and Paragraphs	Quiz on chemical nomenclature and terminology, lectures, interactive discussions	Write down correct chemical words and terms, effective sentences, and paragraphs	
4	Students evaluate research methods, review literature, review reference literature	Research Methods, Literature Review, and	Quiz on words, sentences, and paragraphs, lectures,	Understand that research is one of the efforts to find the truth, starting with a search of primary	

		How to Review Literature	interactive discussions	literature and how to study and write a literature study	
5	Students can evaluate valid and repeatable research procedures, write down units and symbols based on the International System	Research Procedures, Sampling Drawings, Units, and Symbols	Quiz on research methods, lectures, interactive discussions	Can distinguish standard, valid, and repeatable procedures and conventions in writing units and symbols	
6	Able to make research records (logbooks) carefully	Preparing Research Notes	Quiz on research procedures, lectures, interactive discussions	Can provide a logbook carefully based on selected research procedures	
7	Students can analyze and interpret data and prepare effective illustrations	Data Analysis and Interpretation, and Illustration	Presentation of research notes, lectures, interactive discussions	Can display research data well and effectively, and interpret the data interestingly	
8	Can evaluate scientific journal articles that describe novelty	Preparation of Scientific Journal Articles	Quiz on illustrations, lectures, interactive discussions	Can prepare journal articles that meet the rules of accuracy, conciseness, and clarity	
9	Can present research results orally and prepare good and interesting posters	Oral and Poster Presentation	Quiz on scientific journal articles, lectures, interactive discussions	Can present the results of research or field practice with PowerPoint media and posters	
10	Can browse primary, up-to-date, and relevant libraries	Literature Search Techniques	Oral presentations, lectures, interactive discussions	Can apply primary and up-to-date library search techniques electronically	
11	Can translate using various language applications	Translation Techniques	Lecture, interactive discussions	Can translate manuscripts from Indonesian, and vice versa, by utilizing word processing programs or electronic applications	
12	Can manage reference sources using electronic applications	Resource Management	Quiz on translation, lectures, and interactive discussions	Can apply reference manager, such as Mendeley	

13	Can apply referral management programs, such as Mendeley	Preparation of Student Creativity Program (PKM) Proposals	Lectures, interactive discussions	Can compile potentially funded PKM proposals	
14	Can present PKM proposals orally in an interesting manner	PKM Proposal Presentation	Discussion and improvement of proposals	Can present PKM proposals orally and try to improve the script according to the results of the discussion	

II. ASSESSMENT DESIGN

No	Learning Outcomes Courses	ASSIGNMENTS (Resume/Paper/Presentation/Small Project, others)[3)]	Project (*Project Based Learning, PjBL*)	Assignment (*Problem Based Learning, PBL*)	Practical	EXAM		
						MIDTERM	FINAL	QUIZ
1	Students are able to communicate concepts and results of field practice / final project (thesis) /other scientific papers through oral writing and communication skills, using good and correct Indonesian and modern literature search methods to find information about a topic and issue related to chemistry,	Group projects/assignments working on problems applying mathematics in chemical calculations	√	√	----	----	----	√

2	Students are able to produce responsible work through teamwork	Group projects/assignments working on problems applying mathematics in chemical calculations	√	√	----	----	----	√

Details of the Assessment Design:

Learning outcomes	**Individual Quiz**	**Group tasks**
Students can communicate concepts and results of field practice / final project (thesis) / other scientific papers through oral writing and communication skills, using good and correct Indonesian and modern literature search methods to find information about a topic and issue related to chemistry,	1. Spelling according to PUEBI 2. Chemical nomenclature and terminology 3. Write effective sentences with correct spelling 4. Interpret experimental data with concrete sentences accompanied by interesting illustrations 5. One paragraph translation for each student	
Students can produce responsible work through teamwork		1. Evaluate theses from other universities and compare them with the screenings in the Department of Chemistry IPB, especially the introduction, literature review, and quality of reference literature 2. Make research notes based on selected experimental procedures 3. Critique articles in international journals and compare them with articles in local journals 4. Present OT or research results orally with the help of PowerPoint 5. Improve the way bibliography is referenced and written with the help of Mendeley 6. Preparation and presentation of PKM proposals

III. RATING WEIGHTS

Assessment Criteria	Score Range	Score Weight (%)	Assessment	Description
Participatory Activities	-----	-----	-----	Attendance, creativity, and student activities in class, such as doing quiz/assignments, responses to lecturer questions, etc
Project Results	50-100	50	Group score	- Groups of 3-4 students - Project Outcome Target: PKM Proposal - Project Details: Student groups can prepare PKM proposals can be selected based on student interests, namely: • **PKM** Riset Eksakta (**PKM**-RE) • **PKM** Riset Sosial Humaniora (**PKM**-RSH) • **PKM Kewirausahaan** (**PKM**-K) • **PKM** Pengabdian Kepada Masyarakat (**PKM**-PM) • **PKM** Penerapan Iptek (**PKM**-PI) • **PKM** Karsa Cipta (**PKM**-KC) • **PKM** Karya Inovatif (**PKM**-KI) • **PKM** Video Gagasan Konstruktif (**PKM**-VGK) - Project Results Assessment Rubric Components • Accuracy in completing project results; • Completeness in completing project results; • Clarity in completing project deliverables; • Compatibility of project results with PKM Guidelines
Theoretical Assessment:				
Midterm	-----	-----	-----	
Final	-----	-----	-----	
Quiz	50-100	25	Individual score	Quiz are conducted every week after lectures. Quiz time 10-15 minutes//week
Structured Tasks	50-100	25 + LH	Group score	- Groups of 3-4 students - Weekly Assignments: presented on Research Design Details

				- Components of the Task Grading Rubric • Accuracy in completing tasks; • Completeness in completing tasks; • Clarity in completing tasks; • Compatibility of how to complete the task with the material given in class
Practical/UP Assessment	-----	-----	-----	
The Score of Scientific Writing Techniques KIM1391 credits 2 (2-0) + LH		**100**		
Assessment Criteria: A > 85 80 < AB ≤ 85 75 < B ≤ 80 70 < BC ≤ 75 50 < C ≤ 70 40 < D ≤ 50 E < 40				

Weekly Task Assessment Criteria with instruments: Group Task and Presentation assessment forms

Score Range	Group Discussion Assessment Criteria
>85	If students can provide specific and easy to understand explanations, use methods/tools (body movements, analogies and concept maps) in helping the understanding of messages by colleagues and use constructive ways in expressing opinions and reasoning. Students can contribute actively, respect the opinions of colleagues, can work together and conduct evaluations in groups.
80-84	If students can provide specific and easy to understand explanations, use methods/tools (body movements, analogies and concept maps) in helping the understanding of messages by colleagues and use constructive ways in expressing opinions and reasoning. Students can contribute actively and value the opinions of colleagues in the group.
75-79	If students can provide specific and easy to understand explanations, use ways/tools (body movements, analogies and concept maps) to help understand messages by colleagues and use constructive ways in expressing opinions and reason. Students can contribute actively.

70-74	If students can provide specific and easy to understand explanations, use ways/tools (body movements, analogies and concept maps) to help understand messages by colleagues and use constructive ways in expressing opinions and reason.
65-69	If students can provide specific explanations but are less easy to understand, use methods/tools (body movements, analogies and concept maps) in helping the understanding of messages by colleagues and use constructive ways in expressing opinions and reason.
<65	If students can present material with good systematics, timeliness of delivery, good language use, ability to answer questions well / precisely, good and clear material delivery attitude.

Weekly Task Assessment Criteria with instruments: PKM Proposal Preparation Assessment Form

Score Range	PKM Proposal Assessment Criteria
75- 85	If students are able to compile proposals that show **creative, innovative, original, and novelty ideas,** and **can answer existing problems**. The proposal is **well** prepared, easy to read, easy to understand and understand, Using **Good and Correct Indonesian**, according to the PKM proposal template , and using **up-to-date libraries (last 10 years)**
65-75	If students can compile proposals that show **creative, innovative, original, and novelty ideas** and **can answer existing problems**. The proposal is **well** prepared, easy to read, easy to understand and understand, Using **Good and Correct Indonesian, NOT IN accordance** with **the PKM proposal template ,** and using **up-to-date libraries (last 10 years)**
55-65	If students can compile proposals that show **creative, innovative, original, and novelty ideas** and **are able to answer existing problems**. The proposal is well **compiled, easy to read, easy to understand and understand, Using** Good and Correct Indonesian, NOT ACCORDING to the PKM proposal template**, and using** libraries that are NOT up-to-date

Recommended Reading Books Required and Supporting:

1 [IPB]. Pedoman Penulisan Karya Ilmiah. Bogor: IPB Press
2 [Kemdikbud] Kementerian Pendidikan dan Kebudayaan. *Pedoman Khusus Tata Istilah dan Tata Nama Kimia*. Jakarta
4 [Kemdikbud] Kementerian Pendidikan dan Kebudayaan. *Pedoman Umum Ejaan Bahasa Indonesia yang Disempurnakan*. Jakarta
5 [Kemdikbud]. Kementerian Pendidikan dan Kebudayaan. *Kamus Besar bahasa Indonesia*. Ed Ke-5. (luring)
6 [Kemdikbud]. Kementerian Pendidikan dan Kebudayaan. *Glosarium Istilah* (daring)
7 Coghill AM, Garson LR. (Ed.). 2006. The CS Style Guide: Effective Communication of Scientific Information. Edisi ke-3. Oxford: American Chemical Society
8 Council of Biology Editors. 1994. Scientific Style and Format. Edisi ke-6. Chicago: Cambridge