

SCIENCE COMMUNICATION SKILLS [SCS] SEMESTER III

ZOOLOGY DEPARTMENT

NO	SESSION	PLAN	TUTOR
1	Introduction	Relevance of SCS, Overview of course - Emphasize various aspects of SCS - Listening, reading comprehension, - Summarization, group discussions, speaking - How to search for papers using various search engines.	
2	Listening, Reading and Comprehension Aim: to teach students to write without reproducing all that was said <i>ad verbatim</i>	a) Talk for 10 – 15 mins by teacher on any topic. Students don't take notes. End of 10 mins, students are given time to write what they recall and understand. b) They read [Photocopies provided] for 10 mins 2/3 pages provided. Then shut pages and write what they recall and understand. c) Show film 10 -15 mins clip, students are asked to write what they recalled and understand after the clip. d) Random selection of student writings to be read out in class and discussed.	<p><i>[Matter used can be decided by the Department]</i></p> <p>Chiefly memory-based learning.</p>
3	Comprehension and Writing a summary	a) 10 – 15 min staff input on how to write a summary / precis. b) Groups of 3 – 4 are given a chapter from a book / science magazine / details of a field trip. c) Convert the given material into a newspaper article with 25% details / summarize the material to 25% of its the length / write a field report of 1 page if the given details were 4 pages to read. d) Group of 3 – 4, with each individual of a group having a different type of material. Individual completes his summary and then exchanges his	<p>Shift from memory based - to understanding dependent writing</p>

		<p>material with next in group. All in one group separately write 3 different summaries. Then compare with group members, each summary, reach a new consensus summary.</p> <p>e) Whole class / all groups can be given the same set of 3 articles or 2 different sets o 3 could be prepared, one set a little simple than the other, distribution could be based on level of the group.</p>	
4	Reading a simple research paper	<p>a) Why read a paper and how to read a paper</p> <p>b) Explain the general format of a paper [introduction, methods, results, discussion, conclusion]</p> <p>c) What to look for while summarizing a paper / how to select salient features in a paper.</p> <p>d) Students are given paper / article to read and understand. This exercise is conducted in the classroom.</p> <p>e) Then the students are asked to choose a paper of their interest.</p> <p>f) Students summarize/prepare a write up giving gist of the paper / do a pointwise listing of key features, such that this write up will be useful for them for later referencing. This write up is used as evaluation.</p>	<p><i>There are excellent articles on “how to read a scientific paper” in various subjects, online.</i></p>
5	Writing an abstract	<p>a) Staff to explain the structure of an abstract and the points to remember while writing an abstract.</p> <p>b) How to recognize good and bad abstracts based on the above information. Students to be provided good and bad abstracts in sets of 3 groups + individuals work in groups + sharing of conclusions in groups teacher conducts general discussion on the positives and negatives of each abstract.</p>	

		<p>c) Summary made of paper read in the previous session could be converted into an abstract.</p> <p>d) Compare and understand the difference between summary and abstract.</p>	
6	Evaluation and Feedback	<p>Evaluation:</p> <p>a) Provide a scientific paper and ask for an abstract to be written.</p> <p>b) Give article and let the salient features be written in abstract form</p> <p>c) Provide a 3 – 4 pages article from a science magazine and ask for a 1 – page news report / popular science article to be written.</p> <p>d) Provide field trip details and ask for a crisp, short report to be written.</p> <p>e) Any other approach could be suggested e.g. recognize good and bad abstracts + write a report / news article / abstract.</p> <p>Feedback: A questionnaire will have to be prepared and circulated before the start of the evaluation / after they complete the evaluation.</p>	<p><i>A questionnaire to be created by coordinators of the course that is common to all departments</i></p>

References:

1. Effective Scientific Communication - The other half of Science
Cristina Hanganu-Bresch and Kelleen Flaherty (Oxford University Press)
2. Basic Concepts of Science Communication. Dr. Mohan Shivanand (Editor, Reader's Digest)
3. Science Communication - A practical guide for Scientists
Laura Bowater. Kay Yeoman (Wiley)

NO	SESSION	PLAN	TUTOR
1	Recap of Sem III and Types of structures of scientific writings	<p>a) Explain the various types of scientific writing. [Papers, reviews, short communications, articles for newspapers, popular science writing, chapters in a text book]</p> <p>b) Discuss in detail the structure of a science paper using different journals in your subject.</p> <p>c) Exercise: students to be given papers to work on in groups. They are asked to:</p> <ul style="list-style-type: none"> ● List the points included in the introduction and discussion. ● Extract the relevant method used and tabulate it / determine the underlying principle. <p>Preferably select papers of a more descriptive nature specially in the physical sciences and chemistry.</p>	
2	Writing – “The how of writing”	<p>a) Staff input on the rules for text, figures, tables, graphs, punctuations, location legends etc</p> <p>b) How to write a title? How to write an introduction? Exercise: Give photocopies of results. Ask students to</p> <ul style="list-style-type: none"> ● Formulate title of paper and ● Prepare an introduction i.e. list the points they would like to cover in the introduction <p>c) How to write a bibliography? Staff input regarding different styles and of reference writing and variations for books, journals etc. Exercise: Ask students to write names of 5 text books / reference books they normally use as if they were writing for the bibliography of their paper. Get 4 – 5 science magazines, let the students pick an article in each and write it as a reference.</p> <p>d) How to write a project proposal?</p> <ul style="list-style-type: none"> ● When, why, explain the context ● Hypothesis formulation, ● Methodology, budget 	<i>Matter used for the exercises can be decided by the department</i>

		<p>Exercise: Students are divided into groups and have to submit a research proposal.</p> <p>e) How to gather information?</p> <ul style="list-style-type: none"> ● Literature survey from magazines, journals (letters / short communications / abstracts / articles / reviews) ● What are good journals / authentic sites? ● Search engines students use <p>Exercise: Give a topic (maybe their assignment topic) students collect information / number of references in each of the following categories: Books, Papers, Reviews.</p>	
3	Writing cont'd	<p>a) 10 -15 mins staff input on how to write a paper / article</p> <p>b) Groups of 3 – 4 students, each, are formed. Each group gets data from an experiment they have performed or a project they have done.</p> <p>c) Based on this data, the students are guided to write a research paper, by highlighting how to write different parts of a paper such as title, authors and their affiliations, abstract, key words, introduction, methods, results, discussions, acknowledgments, in-text citations and bibliography.</p> <p>d) The students are asked to choose a journal where such paper can be submitted. They are asked to go through the instructions to authors.</p> <p>e) Exercise: Students complete the paper and email it to the staff. This paper is used for evaluation.</p>	
4	Presentation	<p>a) Staff to discuss the positives and negatives of all the submitted papers.</p> <p>b) Students revise papers keeping in mind the suggestions of the staff.</p> <p>c) Staff explains how to make a power-point of the paper (how many slides / what to write</p>	

		<p>on PPT / what to say verbally / time per slide....)</p> <p>d) Staff take a session on how to make graphs in excel etc.</p> <p>Exercise: Students start to design their slides pointwise on paper.</p>	
5	PPT Presentation	<p>a) Practise presentations by about 4 – 5 students randomly selected</p> <p>b) Evaluation and discussion of the positives and negatives.</p>	
6	Evaluation and Feedback	<p>Evaluation:</p> <p>a) A 5 min presentation by each pair , 2 -5 min per person. Order of presentation will be disclosed before they go up to present.</p> <p>b) 2 mins for questions + 2 mins change over time, therefore about 10 students / lecture</p> <p>Feedback:</p> <p>A questionnaire will have to be prepared and circulated before the start of the evaluation / after they complete the evaluation.</p>	<p><i>Presentations will have to be spread over two weeks.</i></p>