

## Scientific & Technical Communication I / Skills Matrix\*

STC I is the first course in a two-course freshman composition sequence. This course introduces and begins to develop a set of literacy skills deemed necessary for success in STEM-related academic activities. Skills to be learned include:

1. Incorporating data and figures into written explanations and arguments;
2. Writing abstracts and summaries;
3. Using IEEE citation format to cite sources and provide bibliographic references;
4. Reading carefully or "closely" to trace the evidence used to make an argument;
5. Using online tools (e.g. Google; Google Scholar) to conduct research;
6. Integrating information from multiple sources in written explanations and arguments;
7. Taking notes and paraphrasing to avoid plagiarism;
8. Composing in a variety of modes.

The table below shows the progression of skill development across assignments. This model of learning is “spiral” in its design. Skills are developed and practiced in increasingly complex instantiations until proficiency is demonstrated.

Course Topics	Short Writing Assignments	Essay Supporting/ Refuting a Claim	Object-Focused Essay	Multimodal Presentation
1. Data & Figures	X	XX	XXX	XXX
2. Abstract & Summary	X	XX	XXX	
3. Citation & Reference	X	XX	XXX	XXX
4. Close Reading	X	XX	XXX	
5. Online Research		X	XX	
6. Information Integration		X	XX	XXX
7. Notes & Paraphrase	X	XX	XXX	
8. Multimodal Composition		X	X	XX

X: Introduction and Early Practice

XX: Practice

XXX: Proficiency Demonstrated and Extended

\*Skills matrixes and assignment prompts adapted from materials originally created by Dr. Mark Dressman for Khalifa University.

## Scientific & Technical Communication II / Skills Matrix

STC II is the second course in a two-course freshman composition sequence. Via two extensive composition assignments this course further develops literacy skills introduced in STC I. It also develops skills related to project planning and budgeting: areas of special concern to science and engineering faculty. Skills to be practiced or learned include:

1. Core skills from English 101 (data-driven argumentation; abstract & summary; citation);
2. Writing to specifications;
3. Project planning and timeline development;
4. Using Excel (or similar spreadsheet program) to manage project finances;
5. Reading and understanding research reports and academic articles;
6. Using advanced online tools (e.g. scientific databases) to conduct research;
7. Composing in multiple genres for a variety of audiences;
8. Avoiding plagiarism through paraphrasing and citation;
9. Combining communication modes to increase reader comprehension and engagement.

Course Topics	Technical Report	Multimodal Supplement	Project Proposal	Multimodal Supplement
1. Core skills	XXX		XXX	
2. Writing to Specifications	X		XX	
3. Project Planning			X	
4. Budgeting / Spreadsheets			X	
5. Close Reading	XXX		XXX	
6. Online Research	XXX		XXX	
7. Composing in Multiple Genres		XX		XXX
8. Paraphrasing & Citation	XXX		XXX	
9. Multimodal Composition	XXX	XXX	XXX	XXX

X: Introduction and Early Practice

XX: Practice

XXX: Proficiency Demonstrated and Extended

## Assignments

### Scientific & Technical Communication I

- Short writing tasks which introduce: 1) data-driven argumentation; 2) abstracts and summary; 3) citation and referencing.
- A writing-centered assignment of about 1000 words in which students refute or support a STEM-related claim and that includes online research and the use of IEEE citation format.
- A writing-centered assignment of 1000 to 1500 words in which students focus on an object or product and write about it from multiple angles (e.g., scientific, social, economic, cultural, historical) and that includes online research and the use of IEEE citation format.
- A multimodal presentation or video that remediates the product of either the “supporting a claim” or “object-focused” assignment in an engaging and informative way.

### Scientific & Technical Communication II

- A technical report of 1000 to 1500 words. The report includes: a narrative of the research process; a statement of findings, supported by tables, graphs and other multimodal elements; and a recommendation for action based on the report’s findings. The report is supplemented by a multimodal presentation, video or website.
- A response to a request for proposals (RFP) of 1500 to 2000 words in which a use for grant money is proposed. The proposal needs to include: an executive summary; a detailed description of the project; a budget in Excel or other spreadsheet program; a budget narrative; and a Gantt Chart. The proposal is supplemented by a multimodal presentation, video or website.