Course Name: Honors English 12
Course Level: Grade 12
Course Code: EN 414/424
(Course Length) year long
Pre-requisite: EN 314/324

Description
This course is for students with outstanding communication skills. The basis of this course is continual developmental improvement of reading, writing, speaking, listening, and research skills. Students will read and analyze scientific writing in several current fields including engineering and biomedical reviews and research. Students will write numerous scientific lab reports, reviews, papers and at least 2 scientific research papers. Students will conduct numerous oral presentations reflecting scientific finds. Students will demonstrate understanding of oral presentations in science. Students will also read, analyze, reflect and present on editorial or persuasive articles on current scientific issues. Peer and collaborative writing will also be used to help students recognize writing as a recursive process.

Objectives: ASW
- Demonstrate critical reading skills focused on scientific text by identification of the hypothesis, paraphrasing of essential scientific language, recognition of the scientific method presented in the text, outlining the organization of the text, and accurate interpretation of the finding presented in the text.
- Through peer and collaborative writing included in this course learn to self-analyze their writing in order to see writing as a recursive process, write and revise effectively, to encourage other students to write appropriately, and to collaborate on writing tasks.
- Demonstrate critical writing skills by accurately reflecting research finding and experimental processes, organizing written work with a clear focus and logical order, supporting the thesis of written papers with sufficient details supported by research or experimentation, expressing logical conclusions within scientific writing.
- Demonstrate oral presentation skills by accurate use of scientific vocabulary, adequate scientific support of the finding presented, logical order of presentations, clear conclusions, and attention to the needs of the audience. For oral presentations students will also employ technology or posters to illustrate the
focus of the presentations. Demonstrate understanding of oral (lectures) in science.

Technology and Other Resources
On-line internet searches required.
Software: Microsoft Word, Excel, PowerPoint.
Magazines and Journals: engineering and biomedical resources available through the Media Center or on-loan from university libraries
Bound copies of scientific articles regarding the topics covered in Physics II and Advanced Biology (TB provided by the GRAPCEP staff)
Appropriate textbook, if available, TBA, on scientific readings and writings

Grading System
Class assignments and participation 10%
Article assignments, oral presentations, and lab reports 30%
Major papers (2) 30%
Major presentation 20%
Writing analysis and peer review 10%

Note
This course is integrated with the major senior projects that the GRAPCEP students will do in one of two tracks and the corresponding courses involving the projects: biomedical track (Advanced Biology) and the engineering track (Physics II). Many of the reading and writing assignments for this course will correspond with the lab work and research students will do for the projects required in those classes.
Syllabus

Unit #1: Understanding Readings in Experimental Science (10 weeks total; 3 weeks at beginning of term 1; then Unit #2; then 7 weeks following Unit #2)

Objective: Demonstrate critical reading skills focused on scientific text by identification of the hypothesis, paraphrasing of essential scientific language, recognition of the scientific method presented in the text, outlining the organization of the text, and accurate interpretation of the finding presented in the text.

Main Topics

<table>
<thead>
<tr>
<th>Elements of the scientific method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of a hypothesis</td>
</tr>
<tr>
<td>Main idea and thesis statements in science</td>
</tr>
<tr>
<td>Paraphrasing scientific information</td>
</tr>
<tr>
<td>Interpreting conclusions in scientific readings</td>
</tr>
<tr>
<td>Writing accurate summaries of scientific readings</td>
</tr>
<tr>
<td>Oral presentations in response to scientific readings</td>
</tr>
</tbody>
</table>

Learning Outcomes: ASW

- Identify elements of the scientific method in experimental reports and journal articles
- Identify the main idea statements in popular scientific articles
- Write appropriate thesis statements in reaction to scientific articles
- Accurately paraphrase figurative language used in popular scientific writing
- Accurately paraphrase scientific information gathered from various sources
- Accurately outline the organization of scientific articles
- Accurately write summaries of scientific readings from various sources
- Write an appropriate hypothesis for each of a collection of reports on related scientific articles and experiments organized around common themes
**Products/Projects**

Portfolios of least 2 thematic collections of scientific articles (from popular to journal articles) and supporting assignments (main idea statement, thesis, paraphrasing, outlines of organization, summaries, and hypothesis based on themes)

The thematic collections will differ for students in the GRAPCEP biomedical track (bacteria, viruses, and cancer) and the GRAPCEP engineering track (universal gravitation, conductors & semi-conductors, and cutting edge applications of electronics). Students will be given bound copies of some articles on each of the topics for their career track, and students will gather additions articles through research.

**Major Assessments**

Written work for each of the thematic collections of scientific articles
Oral presentations based on conclusions from scientific articles and corresponding hypothesis
Syllabus

Unit #2: Planning and Writing Reports on Experiments (6 weeks)

Objective: Demonstrate critical writing skills by accurately reflecting research finding and experimental processes, organizing written work with a clear focus and logical order, supporting the thesis of written papers with sufficient details supported by research or experimentation, expressing logical conclusions within scientific writing.

Main Topics
Planning experiments to minimize personal factors, control for extraneous factors, include precise measurements and observations, and accurately test a hypothesis

Writing lab reports that precisely reflect the scientific planning (listed above)
Writing conclusions from experiments or case studies

Learning Outcomes: ASW

- Brainstorm and list possible personal factors that can affect planned experiments
- Brainstorm and list possible extraneous factors that can affect planned experiments
- Review articles with details of scientific experiments or case studies and list factors affecting the results
- Brainstorm and list methods of measurement and observations to be used in planned experiments
- Observe teacher directed experiments and record information for a lab report
- Conduct lab experiments and record measurements and observations regarding the results of the experiments
- Write a conclusion for each experiment conducted
- Write a hypothesis for related experiment conducted
- Orally debate the validity of experiments, the conclusions drawn from the experiments, and the hypothesis proposed regarding each experiment
<table>
<thead>
<tr>
<th>Products/Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab reports</td>
</tr>
<tr>
<td>Oral debates on validity of experiments reflecting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written work</td>
</tr>
<tr>
<td>Oral presentations</td>
</tr>
</tbody>
</table>
Syllabus

Unit #3: Understanding Writing Styles and Research Methods
(8 weeks)

Objective. Through peer and collaborative writing included in this course learn to self-analyze their writing in order to see writing as a recursive process, write and revise effectively, to encourage other students to write appropriately, and to collaborate on writing tasks. Demonstrate effective research and writing skills for scientific writing.

Main Topics

Self-evaluation of writing process
Recognition of differing writing processes
Recognition of writing as recursive and the importance of revision
Self-evaluation of writing
Outside evaluation of writing
Peer review of written work

Effective research techniques
Correct citations for scientific writing
Accurate writing of experiments used to support research for major paper
Drawing conclusions for a body of scientific knowledge and original experiments
Writing major research papers in science
Evaluation of research papers in science

Learning Outcomes: ASW

- Analyze writing process surveys
- Document their writing process
- Compare their own writing process to other students
- Use effective research techniques in preparation of research papers
- Correctly include citations within research paper
- Organize research and experimental finding for 2 research papers
- Use peer review and evaluation rubric for revision of research papers from draft to final paper
- Write 2 research papers
<table>
<thead>
<tr>
<th>Products/Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing process surveys and self-documentation of writing process</td>
</tr>
<tr>
<td>Self-, outside, and peer review sheets</td>
</tr>
<tr>
<td>Drafts and final versions of 2 research papers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing review sheets</td>
</tr>
<tr>
<td>2 research papers</td>
</tr>
</tbody>
</table>
Syllabus

Unit #4: Oral Presentations in Science (8 weeks)

Objective: Demonstrate oral presentation skills by accurate use of scientific vocabulary, adequate scientific support of the finding presented, logical order of presentations, clear conclusions, and attention to the needs of the audience. For oral presentations students will also employ technology or posters to illustrate the focus of the presentations. Demonstrate understanding of oral presentations (lectures) in science.

Main Topics

| Elements of good oral presentations |
| Evaluation of oral presentations in science based on support presented for conclusion or hypothesis |
| Organizing oral presentations based on research work |
| Using technological support for presentations (PowerPoint slides, etc) |
| Developing appropriate graphic representations for oral presentations |
| Using display boards during oral presentations |
| Effective speech and gestures for oral presentations |
| Responding to questions from the audience for an oral presentation |

Taking notes during oral presentations
Reviewing lecture notes
Test responses to lectures

Learning Outcomes: ASW

- Implement elements of good oral presentations
- Evaluate oral presentations based on support for conclusion or hypothesis
- Organize and deliver a brief oral presentation based on scientific research from one of the student’s portfolios of thematic articles.
- Effectively organize and deliver as oral presentation of at least 20 minutes and based on scientific research (for major research paper written prior to this unit), including technological support, graphic representations, and a display board.
- Respond appropriately to questions from the audience for the major oral presentation, an audience including other students in the class and scientists from the Van Andel Research Institute and Grand Valley State University.
- Take comprehensive notes based on at least 3 scientific lectures.
- Effectively review notes taken for at least 3 scientific lectures so that they score at least 80% on a written test of the information presented.
<table>
<thead>
<tr>
<th>Products/Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written evaluations of oral presentations</td>
</tr>
<tr>
<td>2 oral presentations (one of major length and significance)</td>
</tr>
<tr>
<td>Notes from at least 3 scientific lectures</td>
</tr>
<tr>
<td>Test scores based on review of lecture notes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral presentations</td>
</tr>
<tr>
<td>Written evaluation of oral presentations</td>
</tr>
<tr>
<td>Written notes and corresponding test score</td>
</tr>
</tbody>
</table>