



**Gifted LearningLinks Program  
Course Syllabus**

**Instructor name: Francesca Gray  
E-mail address: xxx@xxx.xxx**

**Germs: The Good, the Bad & the Ugly (Grades 3-5)**

**Session Date: Winter 2012**

**Course Description:**

Germs - bacteria, viruses, fungi - are everywhere! They can make us ill but they can also help us. Learn about the different classes of germs, their structures, growth and reproductive systems. Experiment to discover what types of germs are in your environment and what you can do to prevent illness.

Note: Some materials may need to be purchased for experiments at home.

**Outcomes:** Upon successful completion of this course:

Students will know:

- That most microorganisms do not cause disease and that many are beneficial
- That germs are a type of microbe
- That bad microbes or germs can include viruses, bacteria, or fungi
- That germs live almost anywhere
- The structure of a germ
- How germs grow and reproduce
- That germs cannot move independently

Students will understand:

- The different classes of germs - bacteria, viruses, and fungi
- The processes of scientific inquiry and investigate questions, conduct experiments and solve problems
- How scientists observe and/or grow germs
- Some of the history of the fight against germs

Students will be able to:

- Describe what a culture is and use it to grow bacteria
- Discuss the size of bacteria, give the definition of a colony and tell why they are able to grow
- Discover the diversity of bacteria
- Discover that bacteria (and fungus) are everywhere and that they are usually too small to see unless they are grown in abundance
- Explain how germs are spread

- Explain some strategies for fighting and/or preventing germs and disease

### **Resources and Materials:**

#### **a. Websites**

- <http://archives.microbeworld.org/microbes/>
- <http://www.cellsalive.com/>
- <http://library.thinkquest.org/J002353/> (Good resource on germs)
- Other specific websites will be found on course site

#### **b. Materials**

- Paper, pencils, drawing paper, crayons, markers, or colored pencils
- Digital camera would be useful for uploading pictures of your projects
- 12"-Ruler with millimeters and inches
- hand lens/magnifying glass
- Other materials for lab exercises (listed on course site)

### **Gifted LearningLinks Course Requirement**

- All Gifted LearningLinks (GLL) courses require a properly maintained computer with broadband Internet access, a recent-version of the Mozilla Firefox web browser, and a stable email account (once a student is registered for a course, he/she should not change his/her email address unnecessarily, as difficulties in communication will greatly affect his/her success in the course).
- All GLL courses use the Blackboard Course Management System. Web browsers must be Java- and cookie-enabled.
- Most courses use Acrobat Connect for video conferencing. A headset with a microphone and a webcam are highly recommended.
- Students are expected to be familiar with standard computer operations (e.g., login, cut & paste, email attachments) and to acquaint themselves with the Blackboard Course Management System and Acrobat Connect software prior to the start of class. A sample Blackboard classroom, as well as tutorials featuring Blackboard and Acrobat Connect are available on our website (<http://www.ctd.northwestern.edu/learning/tutorials/index.html>).
- In order to be successful in an online course, the following skills are also needed: self-direction, independent time management, and the ability to meet deadlines.

### **CTD Statement on Third-Party Web Sites**

Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.

**Schedule: Germs: The Good, the Bad & the Ugly**

	<b>Topic/Focus</b>	<b>Activities &amp; Reading Assignments</b>	<b>What do I need to post to the Discussion Board?</b>	<b>What do I need to turn in?</b>
<b>Week 1</b>	<p><b>Orientation to Online Learning</b></p> <p><b>Introduction: The Discovery of Germs What Are Germs?</b></p>	<ul style="list-style-type: none"> <li>• Complete introductions</li> <li>• Answer pre-activity question</li> <li>• The Discovery of Germs</li> <li>• What types of germs are there and what do germs do?</li> <li>• Gather materials for Week 2 LAB</li> <li>• Final Project Ideas</li> </ul>	<p>Introduce yourself on the Discussion Board Welcome Forum</p> <p>Post answers to pre-activity question</p>	Germ diagram
<b>Week 2</b>	<p><b>How Do Germs Travel? How Are Germs Spread?</b></p>	<ul style="list-style-type: none"> <li>• Answer pre-activity question</li> <li>• Read Background Information &amp; Vocabulary</li> <li>• What do germs do? cont'd.</li> <li>• “Hands Off, Bacteria!” LAB</li> <li>• Complete activities specified on course site</li> </ul>	<p>Post answers to pre-activity questions.</p>	<p>Reflections on Activity/Lab sheet.</p> <p>Course site activities.</p> <p>Ideas for final project.</p>
<b>Week 3</b>	<p><b>What’s In a Name: Germs, Pathogens, Bacteria, Microbes, etc.</b></p>	<ul style="list-style-type: none"> <li>• Answer pre-activity question</li> <li>• Read Background Information and vocabulary</li> <li>• What’s the difference?</li> <li>• Structure, growth, reproduction</li> <li>• Complete activities specified on course site</li> <li>• Gather materials for Week 4 LAB</li> </ul>	<p>Post answers to pre-activity question.</p> <p>Questions or comments about activities.</p>	<p>Answer critical thinking question in your own words.</p> <p>Ideas for final project.</p>

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<b>Week 4</b>	<b>Bacteria Growing LAB!!!!!! Part 1</b>	<ul style="list-style-type: none"> <li>• Answer pre-activity question</li> <li>• Read background information/vocabulary</li> <li>• Complete bacteria growing lab activities specified on course site</li> </ul>	<p>Post answers to pre-activity question.</p> <p>Questions or comments about activities.</p>	<p>Bacteria lab/activity sheet.</p> <p>Ideas for final project</p>
<b>Week 5</b>	<b>Bacteria Growing LAB!!!!!! Part 2</b>  <b>Germs &amp; Disease Part 1</b>	<ul style="list-style-type: none"> <li>• Answer pre-activity questions</li> <li>• Read background information/vocabulary</li> <li>• Complete LAB</li> <li>• Germs &amp; disease intro</li> <li>• Complete activities specified on course site</li> <li>• Begin working on final projects</li> </ul>	<p>Post answers to pre-activity questions.</p> <p>Questions or comments about activities.</p>	<p>Answer critical thinking question in your own words.</p> <p>Completed Bacteria lab/activity sheet.</p>
<b>Week 6</b>	<b>Germs &amp; Disease Part 2</b>  <b>Epidemics in History</b>	<ul style="list-style-type: none"> <li>• Answer pre-activity questions</li> <li>• Read background information/vocabulary</li> <li>• Follow directions on course site to complete activities</li> <li>• Continue working on final projects</li> </ul>	<p>Post answers to pre-activity questions.</p> <p>Questions or comments about activities.</p>	<p>Answer critical thinking question in your own words.</p>
<b>Week 7</b>	<b>Useful Microbes: The Good Guys LAB</b>	<ul style="list-style-type: none"> <li>• Answer pre-activity questions</li> <li>• Read background information/vocabulary</li> <li>• Complete LAB activities specified on course site</li> <li>• Continue working on final projects</li> </ul>	<p>Post answers to pre-activity questions.</p> <p>Questions or comments about activities.</p>	<p>Answer critical thinking question in your own words.</p> <p>Completed lab/activity worksheet.</p>
<b>Week 8</b>	<b>“GROSS-ology” &amp; Disease Promoting Microbes</b>	<ul style="list-style-type: none"> <li>• Answer pre-activity questions</li> <li>• Read background information/vocabulary</li> <li>• Complete activities specified on course site</li> <li>• Continue working on final projects</li> </ul>	<p>Post answers to pre-activity questions.</p> <p>Questions or comments about activities.</p>	<p>Answer critical thinking question in your own words.</p> <p>Completed activity worksheet.</p>

	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
Week 9	<b>Microbes on Mars? (&amp; elsewhere)</b>  <b>Which Microbe Are You?</b>	<ul style="list-style-type: none"> <li>• Answer pre-activity questions</li> <li>• Read background information/vocabulary</li> <li>• Complete activities specified on course site</li> </ul>	Post answers to pre-activity questions.  Questions or comments on final projects.	Completed final projects

**Final Project Ideas:**

- Microbe News
- Antibiotic Media Campaign
- Fun With Microbes
- “Training” Hospital Volunteers
- “Infection Detection”
- Feel free to suggest an idea on a specific course topic of interest

Guidelines for final projects will be on the course site.

**Student Evaluation and Grading Policies for Enrichment Courses:**

Since this is an enrichment class, a narrative evaluation will be written at the conclusion of the course. Students will be evaluated on the quality of their work, participation in activities and discussions, and performance on labs and projects.

Students will also be evaluated on timely submission of assignments and ability to work and learn with some independence.

**Instructor Biography:**

Mrs. Gray loves science and the process of inquiry. Her goal is to reach the “scientist” inside every child by inspiring the excitement of discovery. She taught five years in the Bellwood School District; spending four years teaching the district’s Academy Class (gifted/talented). Previously, she taught ten years at James Memorial Christian Academy—a private school in Maywood, Illinois. Mrs. Gray began working for Northwestern’s Center for Talent Development Saturday Enrichment Program in the spring of 2010 as a teacher for the course, *The Wow of Chemistry*. She has been teaching for Gifted LearningLinks since the fall of 2010. Mrs. Gray holds a BA in Communications (Graphic Design) from Simmons College in Boston, Massachusetts and a MAT in Elementary Education from Chicago State University.

**Contact Information:**

My email address: xxx@xxx.xxx