Exploring Career Clusters
A modular, hands-on approach to career exploration by Career Clusters®

Agriculture, Food & Natural Resources
Architecture & Construction
Arts, A/V Technology and Communications
Business, Management & Administration
Education & Training
Finance
Government & Public Administration

Health Science
Hospitality & Tourism
Human Services
Information Technology
Law, Public Safety, Corrections & Security
Manufacturing
Marketing, Sales & Service
Science, Technology, Engineering & Mathematics
Transportation, Distribution & Logistics

Division of Career Education
Department of Elementary & Secondary Education
Jefferson City, Missouri

Missouri Center for Career Education
Department of Career & Technology Education
University of Central Missouri
Warrensburg, Missouri
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Assessment Recommendations

The purpose of this program is to introduce students to the myriad of occupations available within each Career Cluster being studied. It is **EXPLORATORY**. It should help students gain insight into their own interests and abilities, and learn important information to help them plan their high school courses/major and subsequent postsecondary educational program.

The following is a recommended combination of modules and student assessment guide:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction Activities</td>
<td>10%</td>
</tr>
<tr>
<td>Biotechnology Research and Development Pathway Activities</td>
<td>25%</td>
</tr>
<tr>
<td>Therapeutic Services Pathway Activities</td>
<td>25%</td>
</tr>
<tr>
<td>Health Informatics Pathway Activities</td>
<td>25%</td>
</tr>
<tr>
<td>Career Search</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Grade sheets have been included to serve as a guide for assessing students and distributing points to meet the recommendations as listed. These are meant to be guides and should be changed to meet the class and students’ specific needs.

A recommended summative assessment has been designed as a tool for instructors to use in evaluating the knowledge and skills students have acquired by taking the Exploring Career Clusters course. The assessment is scenario based and assesses the major goals of the course; namely, students can upon completion of the course perform a coordinated career search that matches a prescribed set of abilities, skills, interests, and work values. The assessment information can be found on page 22 of the Exploring Career Cluster Introduction module and on the web at [http://missouricareereducation.org/curr/cmd/techedG/explgCC/modules.html](http://missouricareereducation.org/curr/cmd/techedG/explgCC/modules.html) as a standalone document entitled *Scenario Based Assessment*. 
# Individual Student Record

Student: ___________________   Class: _______________   Semester: _______________

<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Points Possible</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Science</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Collage Participation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Collage II Jigsaw Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Trip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxicology and Smoking Activity</td>
<td></td>
<td></td>
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<tr>
<td>Onion Root Examination Activity</td>
<td></td>
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<tr>
<td>Disease Research</td>
<td></td>
<td></td>
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<tr>
<td>Vital Signs Activity</td>
<td></td>
<td></td>
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<tr>
<td>Therapeutic Services Plan</td>
<td></td>
<td></td>
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<tr>
<td>Calculating Service Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease Lesson Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease Presentation</td>
<td></td>
<td></td>
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<tr>
<td>Public Health Announcement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Search Identity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Career Plan (4-year plan)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Points:**
Teaching Calendar

This is a sample calendar to be used in planning the course. The calendar is based on a school schedule of 50 minute class periods. The activities may need to be adapted for differences in class structure.

<table>
<thead>
<tr>
<th>Class Periods:</th>
<th>Section:</th>
<th>Activities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 days</td>
<td>Intro to the Cluster</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>Pathway</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>Pathway</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>Pathway</td>
<td></td>
</tr>
<tr>
<td>5 days</td>
<td>Career Search</td>
<td></td>
</tr>
</tbody>
</table>
Health Science Student Competencies

The following competencies selected for this unit were taken directly from the Career Cluster Resource for Health science (www.careerclusters.org).

Career Cluster Knowledge and Skills

- Health care workers will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing.

- Health care workers will understand the roles and responsibilities of the individual members as part of the health care team, including their ability to promote the delivery of quality health care.

- Health care workers will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the health care environment. They will perform quality health care delivery.

- Health care workers will understand how employability skills enhance their employment opportunities and job satisfaction. They will demonstrate key employability skills and will maintain and upgrade skills, as needed.

Career Pathway Knowledge and Skills

- Therapeutic service professionals will be able to explain planned procedures to patients and health professionals including goals, side effects and coping strategies. They will use various strategies to respond to questions and concerns of patients.

- Health informatics professionals will communicate health/medical information accurately and within legal/regulatory guidelines established by the facility holding to the strictest standards of confidentiality.

- Health informatics professionals will understand the content and diverse uses of health information. They will accurately document, communicate and maintain appropriate information using legal and regulatory guidelines.

- Biotechnology R&D professionals will be knowledgeable in the fundamentals of biochemistry, cell biology, genetics, mathematical concepts, microbiology, molecular biology, organic chemistry, and statistics.
Exploring Career Clusters in Health Science

Introducing the Health Science Cluster

The cluster of careers found in Health science encompasses the research, treatment, and diagnosis of disease and health problems. Careers in this cluster also involve the science and technology of diagnosis, health communication and support of services. This Career Cluster is divided into five distinct Pathways made up of specialties/occupations: Therapeutic Services, Diagnostic Services, Health Informatics, Support Services, and Biotechnology Research and Development. Each group represents a particular aspect of health. Keep in mind that specialists/occupations may cross over to other Pathways due to the multileveled tasks involved. For example, the nutritionist will be involved with therapy plans for certain patients while they also could serve in the health informatics capacity as they teach the importance of wellness to co-workers, community members, and patients.

Each pathway has distinct knowledge and skill requirements as well as shared common knowledge and skill requirements. Students who understand these relationships will be prepared and able to make informed career decisions. Students should be given the opportunity to explore and investigate not only the traditional career options of physician and nursing but should be encouraged to touch on the many other related occupations found in this Career Cluster.

Teacher Preparation

This unit revolves around the project presented in the first Pathways: Biotechnology Research and Development. Students will choose a disease to research and understand thoroughly. This disease will be the starting point to the activities within the other pathways found in this unit. There are several opportunities to make part of or the entire project “real life” activities. That is, you may have your students take the next challenge and present their presentations, lessons and announcements to other people in the community. Each unit has been designed to allow for teacher creativity and adjustments that may be needed to meet your unique situations. Grade sheets have also been included but are generic enough to be changed and adjusted to the class needs. Point values have not been included for that reason. Many of the activities require the use of computers, time in a computer lab will need to be scheduled or the activities will need to be adjusted to allow the teacher to lead the activities in front of the entire class. The activities have also been designed so that the teacher can choose to use some or all of them as the course is designed.


Pathways (Pathways):
- Therapeutic Services
- Diagnostic Services
- Health Informatics
- Support Services
- Biotechnology Research and Development
Handout: Career Cluster Pathways: Health science
This handout is for teacher reference and can generate discussion about the various careers included within this pathway. This worksheet should be helpful in introducing the pathway and generating career discussion.

Suggested Activities

Introduction to the Cluster
Choose from the following activities or design an appropriate activity that will allow students to comprehend the wide array of occupations involved in caring for the health of others.

1. Hospital Collage
   Students will need to look at a hospital web site or pamphlet. This could be done at individual tables or projected up on a screen for the whole class to view simultaneously. The teacher should facilitate a discussion on the variety of careers that the hospital requires to make it operational. You may want to have a list to get them started – Technicians, Researchers, Billing, Food Service/Nutrition, Educators, Therapists, Care Providers, etc. After a list is comprised, students need to organize the careers into categories. These categories should be separated by the pathways. This would be a prerequisite activity for the Hospital Collage II Jigsaw activity found below.

2. Hospital Collage II Jigsaw Activity
   Students will take the list of careers that they made in the previous activity and expand on those thoughts. Organize the class into groups based on the categories of careers from the last activity. Have the students brainstorm and research the careers within their pathways. They should be looking for the personal work skills, advisement opportunities and technical skills needed for each career. Use the included Hospital Collage Activity worksheet. After the information has been collected, jigsaw the groups so they can learn from each other. Take a member from each of the original groups and create new groups that have an “expert” from each pathway in them. These groups will work together to discuss and find ways that each of the pathways work together within a hospital setting. This should begin a discussion on collaboration and professionalism in the workplace. It is also meant to give students the opportunity to see multiple career options within each pathway.

3. Hospital or Care Center Field Trip
   This activity requires pre-planning and supervision. Set up a field trip to the local or regional hospital or care center facility. This could be an activity that combines other classes to build a collaborative effort. Students in other classes could focus on the science or math operations that occur while students in this class focus on the careers that focus on health science. A combined discussion at the end of the field trip would allow students to learn from the observations of each other. Groups could be established before the field trip and each could have a different focus for their observations.
Upon completion of the activities, post a list of the various occupations students identified. Be prepared to add to the list those occupations students missed. Be sure to point out occupations that are not obvious.

4. Other Resources
  Career Voyages Videos

  http://www.careervoyages.gov/healthcare-videos.cfm

  Health Careers Information Center
  http://www.wihealthcareers.org/career_occ_toc.cfm

  Healthcare Career Resource Center
  http://library.thinkquest.org/15569/

  U.S. Department of Labor, Bureau of Labor Statistics
  http://www.bls.gov/oco/cg/cgs035.htm

  Career Overview
  http://www.careeroverview.com/health-medical-careers.html

  eMINTS.org, eThemes, Health Science Career Cluster
  http://www.emints.org/ethemes/resources/S00001689.shtml

  Webquest.org, web resources for inquiry-based instructional activities
  www.webquest.org

  Iseek.org Health Science Career Videos
  http://www.iseek.org/sv/12000.jsp?code=08
# Health Science Career Cluster

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

### Sample Career Specialties/Occupations
- Acupuncturist
- Anesthesiologist Assistant
- Art Music Dance Therapist(s)
- Athletic Trainer
- Audiologist
- Certified Nursing Assistant
- Chiropractor
- Dental Assistant Hygienist
- Dental Lab Technician
- Dietitian
- Doula
- EMT
- Exercise Physiologist
- Home Health Aide
-Kinesthetic
- Licensed Practical Nurse
- Massage Therapist
- Medical Assistant
- Mortician
- Occupational Therapist Asst
- Ophthalmic Medical Personnel
- Optometrist
- Osteopath
- Paramedic
- Pharmacist
- Pharmacy Tech
- Physical Therapist Assistant
- Physician MD/DO
- Physician's Assistant
- Psychologist
- Recreation Therapist
- Registered Nurse
- Respiratory Therapist
- Social Worker
- Speech Language Pathologist
- Surgical Technician
- Veterinarian Vet Tech

### Pathways
- Therapeutic Services
- Diagnostics Services
- Health Informatics
- Support Services
- Biotechnology Research and Development

### Cluster Knowledge and Skills
- Academic Foundation
- Communications
- Systems
- Employability Skills
- Legal Responsibilities
- Ethics
- Safety Practices
- Teamwork
- Health Maintenance Practices
- Technical Skills
- Information Technology Applications

- Biomedical/ Clinical Engineer
- Biomedical/ Clinical Technician
- Biotechnology
- Environmental Health
- Environmental Services
- Facilities Manager
- Food Service
- Hospital Maintenance Engineer
- Industrial Hygienist
- Materials Management
- Transport Technician
- Biochemist
- Bioinformatics Associate
- Bioinformatics Scientist
- Biostatistician
- Biostatistician
- Biostatistician
- Clinical Trials Research Coordinator
- Clinical Trials Research Associate
- Clinical Trials Research Coordinator
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- Clinical Trials Research Associate
- Clinical Trials Research Coordinator
# Student Hospital Collage Worksheet

Names: ________________________    Pathway: _________________

<table>
<thead>
<tr>
<th>Careers: List careers in your pathway on the lines below</th>
<th>Personal Skills: What personal skills would be necessary for this career?</th>
<th>Advisement: What opportunities for advising others would be part of this career?</th>
<th>Technical Skills: What technical skills would be necessary for this career?</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
Exploration

Biotechnology Research and Development Pathway

Health Science Pathways:

- Therapeutic Services
- Diagnostic Services
- Health Informatics
- Support Services

★ Biotechnology Research and Development ★
Exploring the Biotechnology Research and Development Pathway

Teacher Preparation

The suggested activities for this pathway involve computer access. The disease research notebook can be completed using print materials or the internet. You should review each activity and decide which pieces would work together to meet your unique program needs. These activities are meant to be done individually and should be followed with discussion on how they relate to aspects of this pathway.

Suggested Activities

**Student Toxicology and Smoking Activity** – Students will work through the Scientific Method to gain knowledge and experience in researching effects of toxins. Computer access must be obtained. Students will go to the following web site: [http://www.biology.arizona.edu/chh/activities/tobacco_smoke/sign_in.html](http://www.biology.arizona.edu/chh/activities/tobacco_smoke/sign_in.html) and work through the experiment. This experiment will have students make predictions and then they will evaluate the data that they created.

**Student Onion Root Examination Activity** – Students will work through this online activity to gain knowledge and experience in cell research. This activity should open a discussion on the career skills of biotechnology researchers. Students will have the opportunity to work with technology in testing their knowledge of sciences. Students will go to the following web site: [http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/cell_cycle.html](http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/cell_cycle.html) and follow the instructions.

**Student Disease Research** – This activity is meant to be used in exploring this pathway and the next two pathways found in this cluster. Students will research a disease that they have chosen and complete the Disease Research Assignment Worksheet.
Choose a disease that you would be interested in researching. This disease will be used for more than one activity, so be sure to choose something that you are interested in and has been researched extensively so that you will have enough information.

Disease Chosen: ________________________________

Reason for Choosing Disease: ______________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Explanation of the Disease: _______________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Who is at risk for this disease? ____________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

What are the causes? ______________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

What are the statistics related to this disease? ______________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

What are the treatments (if any)? _________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Sources: ______________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Student Disease Research Worksheet
Biotechnology Research and Development
## Student Biotechnology Research and Development Grade Sheet

Name: ______________________________  Class: _________________________

<table>
<thead>
<tr>
<th>Criteria:</th>
<th>Excellent:</th>
<th>Fair:</th>
<th>Poor:</th>
<th>Total:</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicology: Completeness</td>
<td>Followed the appropriate steps and completed each section of the experiment.</td>
<td>Followed the appropriate steps but left out minor details.</td>
<td>Left out major steps in the experiment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>Thought process was thorough and the scientific method was used for accuracy.</td>
<td>Thought process showed minor errors that would be a problem in research work.</td>
<td>Thought process would not be acceptable in a research position.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onion Root Exam: Directions</td>
<td>Instructions were followed and completed appropriately.</td>
<td>Instructions were mostly followed.</td>
<td>Instructions were not followed; experiment was not completed in a timely manner.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease Research: Disease Choice</td>
<td>Student(s) properly generate questions and or problems around a topic</td>
<td>Student generates questions and or problems.</td>
<td>Student(s) require prompts to generate questions and or problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Carefully examined each aspect of the research requirements.</td>
<td>Examined each aspect, minor details were left out. Answers left the reader guessing.</td>
<td>An aspect was completely left out or several were missing major details. Answers were confusing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causes</td>
<td>Carefully examined the causes of this disease. Answers were thorough and complete.</td>
<td>Examined causes of the disease, minor details were left out. Answers left the reader guessing.</td>
<td>Several causes were completely left out or several were missing major details. Answers were confusing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>Carefully examined the statistics of this disease. Answers were thorough and complete.</td>
<td>Examined statistics of the disease, minor details were left out. Answers left the reader guessing.</td>
<td>Several statistics were completely left out or several were missing major details. Answers were confusing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatments</td>
<td>Carefully examined the treatments of this disease. Answers were thorough and complete.</td>
<td>Examined treatments of the disease, minor details were left out. Answers left the reader guessing.</td>
<td>Several treatments were completely left out or several were missing major details. Answers were confusing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Errors in language are minimal or nonexistent.</td>
<td>Some errors in language are present.</td>
<td>Significant errors in language block communication.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total:**
Exploration

Biotechnology Research and Development Pathway

Health Science Pathways:

Therapeutic Services
- Diagnostic Services
- Health Informatics
- Support Services
- Biotechnology Research and Development
Exploring the Therapeutic Services Pathway

Teacher Preparation

This unit begins with students working as partners to determine vital signs. The teacher should do a thorough demonstration of the expectations associated with this activity before allowing students to work with their partner. Discussion should include patient confidentiality and ethics involved in health science careers. There are also multiple scenario options within this unit, each involving setting up a service plan for a health care patient. Students will choose a career within this pathway that they would like to work in. The scenario will be built by having students choose strips to create their “patient”. Some of the diseases that have been researched may have stipulations (e.g. – a disease found only in men), which would require the students to only draw strips that pertained to the disease that was chosen.

Suggested Activities

_Vital Signs Activity_ – Students will work with a partner to practice performing vital signs in order to gain an understanding of basic skills and dispositions needed in this pathway. Use the included Vital Signs Assignment worksheet.

_Therapeutic Services Plan_ – This activity would work best as an individual project in which each student creates a plan for a client using a scenario. The scenario situation will be drawn using strips of paper, use copies of the Scenario Builder worksheet and have students draw strips to build their unique scenario. The disease for the scenario has been determined by what each student chose to do their research on in the Biotechnology Research and Development Pathway section. Use the included Therapeutic Services Plan worksheet for this activity.

_Calculating Service Costs_ – This could be done in conjunction with the Therapeutic Services Plan, or as a follow-up activity. Students should research the costs of services that they planned for their client. The class should discuss the effects of insurance on these costs as well as differences found within the research of services.
Exploring Career Clusters in Health Science

Student Vital Signs Activity Worksheet
Therapeutic Services

Name: ___________________    Partner: __________________

Directions: Follow the steps in order to properly record the vital signs of your partner. Remember, that you will also be the patient, treat your partner in a professional manner.

A physical exam usually begins by taking and recording the patient’s vital signs. Use the information provided in your teacher’s demonstration to take the following vital signs:

1. Body Temperature
2. Pulse Rate
3. Respiratory Rate
4. Blood Pressure

Record the information on your patient’s chart:

Normal Temp: 97-100 Fahrenheit; or 36.1-37.8 Celsius
Normal Pulse (adult): 60-90 Beats per Minute
Normal Blood Pressure: 100-150 systolic and 60-90 diastolic

Determine if your patient should be concerned about any of their vital signs and explain why they should or should not be concerned.
Therapeutic Services Plan Scenario
and Assignments
Therapeutic Services

This activity is designed to give each student the opportunity to choose a career within the therapeutic services pathway and meet a patient’s needs.

Career Choice

Choose one of the following options:
- Art/Music/Dance Therapist
- Athletic Trainer
- Dietician
- Pharmacist
- Physician
- Recreation Therapist

Scenario

Your scenario begins with the disease that you chose to research when working in the Biotechnology Research and Development pathway. Your patient has been diagnosed with that disease. The rest of your scenario will be built as you draw strips that to determine the characteristics of sex, age and the health background of your patient.

Activity

Step 1: Determine who your patient is. Write a paragraph that explains who your patient is and what they have based on the information that has been given to you.

Step 2: Research the career option that you chose and explain what alternatives might be used in treating your patient.

Step 3: Explain how you would choose to advise your patient in treatment – what activities would be involved, for how long, and would this be a treatment or a method of encouraging quality of life?

Step 4: Explain why you chose this option.
Therapeutic Services Plan
Scenario and Assignments

This chart needs to be copied, cut into strips and students will choose strips to create their “client.”

<table>
<thead>
<tr>
<th>Female</th>
<th>Female</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
<td>Male</td>
<td>Male</td>
</tr>
<tr>
<td>Male</td>
<td>Male</td>
<td>Male</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8 yrs old</th>
<th>8 yrs old</th>
<th>45 yrs old</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 yrs old</td>
<td>15 yrs old</td>
<td>45 yrs old</td>
</tr>
<tr>
<td>23 yrs old</td>
<td>23 yrs old</td>
<td>65 yrs old</td>
</tr>
<tr>
<td>85 yrs old</td>
<td>85 yrs old</td>
<td>65 yrs old</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High Blood Pressure</th>
<th>High Blood Pressure</th>
<th>High Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Cholesterol</td>
<td>High Cholesterol</td>
<td>High Cholesterol</td>
</tr>
<tr>
<td>Normal Blood Pressure</td>
<td>Normal Blood Pressure</td>
<td>Normal Blood Pressure</td>
</tr>
<tr>
<td>Low Cholesterol</td>
<td>Low Cholesterol</td>
<td>Low Cholesterol</td>
</tr>
<tr>
<td>Overweight</td>
<td>Overweight</td>
<td>Overweight</td>
</tr>
<tr>
<td>Underweight</td>
<td>Underweight</td>
<td>Underweight</td>
</tr>
<tr>
<td>Diabetic</td>
<td>Diabetic</td>
<td>Diabetic</td>
</tr>
<tr>
<td>Overstressed</td>
<td>Overstressed</td>
<td>Overstressed</td>
</tr>
<tr>
<td>Positive Stress Level</td>
<td>Positive Stress Level</td>
<td>Positive Stress Level</td>
</tr>
</tbody>
</table>
## Student Therapeutic Services Grade Sheet

<table>
<thead>
<tr>
<th>Criteria:</th>
<th>Excellent:</th>
<th>Fair:</th>
<th>Poor:</th>
<th>Total:</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital Signs: Accuracy</td>
<td>Vital signs were accurate and done correctly.</td>
<td>Vital signs had to be redone or had minor inaccuracies.</td>
<td>Vital signs were done incorrectly or had major inaccuracies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Sincerity</td>
<td>Patient was treated with respect and professionalism.</td>
<td>Patient was treated with minor insincerity.</td>
<td>Patient was treated poorly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting</td>
<td>Reporting was complete, easy to read and accurate.</td>
<td>Reporting was incomplete or was not easy to read but was accurate.</td>
<td>Reporting was inaccurate or not easy to read.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td>Student accurately assessed the patient.</td>
<td>Student made minor inaccuracies in their assessment.</td>
<td>Student was inaccurate on an area of patient assessment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan for Patient: Patient Needs</td>
<td>Patient’s needs were listed and appropriate.</td>
<td>Patient’s needs were listed and appropriate.</td>
<td>Patient’s needs were listed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>Options were well-researched; the student took time, and used a process for making selections.</td>
<td>Options were researched and student used some resources to make selections.</td>
<td>Options were not researched well. Selections were inappropriate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td>Advice was professionally shown/explained to the patient.</td>
<td>Advice was more amateur in their layout or description.</td>
<td>Advice was unprofessional or sloppy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriateness</td>
<td>Treatment was appropriate for the patient and met their needs.</td>
<td>Treatment was mostly appropriate, minor problems may exist.</td>
<td>Treatment was inappropriate for the most part.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanations</td>
<td>Choices were explained in a clear, concise manner that was easily understood.</td>
<td>Choices were explained clearly but may have a few questions from the patient.</td>
<td>Patient would have multiple questions about the choices based on the explanations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Errors in language are minimal or non-existent.</td>
<td>Some errors in language usage are present.</td>
<td>Significant errors in language block communication.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total:                  |                                                                          |                        |                                                                          |        |           |
Exploration

Biotechnology Research and Development Pathway

Health Science Pathways:

Therapeutic Services
Diagnostic Services

Health Informatics
Support Services
Biotechnology Research and Development
Exploring the Health Informatics Pathway

Suggested Activities

Lesson Plan and Activity
This would be best suited as a cooperative learning activity in which students utilize their strengths to teach and present a variety of diseases that they have become experts in. Groups should be created based on the diseases that have already been researched and used in the last two pathways. Students will put the information together and create a lesson and presentation to inform others of their disease. The lesson should be geared toward peers and an audience of similar age. Use the included lesson plan worksheet.

Presentation
The presentation should be a continuation of the lesson plan and activity assignment. This project is intended to be appropriate for an adult audience. The presentation should be professional and show a grasp of the diseases that were researched. Use the included presentation worksheet.

Public Health Announcement
Students are to use creativity and the knowledge that has been obtained about their disease in order to create a Public Service Announcement to educate others. Teachers can make this activity authentic by contacting a local radio station to encourage recording/broadcasting the announcement. If this is not an option, the announcement could be read over the intercom at the school.
Student Disease Lesson Plan Worksheet

Diseases: __________________________________________________________

Age group that this lesson is intended for: ________________
What do you want the students to learn:
1. 
2. 
3. 

What information will be included in your lesson?
1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

How will you present – discussion/power point/poster/etc? What order will you go in?

What activities will you do? (Each person can create a separate activity or the group can do a combined activity that covers all of the information)
1. 
2. 
3. 
4. 

What are some questions you can ask the students?
1. 
2. 
3. 

Materials/Resources:
Student Disease Presentation Worksheet

Diseases: ________________________________________________________________

Who is this presentation intended for: ____________________________

What do you want the audience to learn:

1. 
2. 
3. 

What information will be included in your presentation?

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

How will you present – discussion/power point/poster/etc? What order will you go in?

How will you measure whether or not your presentation was successful?

What makes this presentation different from your lesson? How did you change the lesson? Why?
# Student Health Informatics Grade Sheet

<table>
<thead>
<tr>
<th>Criteria:</th>
<th>Excellent:</th>
<th>Fair:</th>
<th>Poor:</th>
<th>Total:</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson Plan: Objectives</strong></td>
<td>Objectives were clear, appropriate and used to guide the activities.</td>
<td>Objectives were clear but not appropriate to either the theme or the grade level.</td>
<td>Objectives were listed but not appropriate or used for the rest of the lesson.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Activities were creative, well-planned, and appropriate for the objectives and age group.</td>
<td>Activities were creative but only appropriate for the age group or the theme.</td>
<td>Activities were listed but not very creative or appropriate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Questions</strong></td>
<td>Questions were interesting and appropriate for children.</td>
<td>Questions only met one criterion.</td>
<td>Questions were listed but could not be used effectively.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Usability</strong></td>
<td>The lesson was well-planned, easy to understand and use for this scenario.</td>
<td>The lesson could be used but the instructor may have some questions.</td>
<td>The lesson would not be successful when actually implemented with children.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Presentation: Organization</strong></td>
<td>Student presents information in logical, interesting sequence which audience can follow.</td>
<td>Audience has difficulty following presentation because student jumps around.</td>
<td>Audience cannot understand presentation because there is no sequence of information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Student demonstrates full knowledge with explanations and elaboration.</td>
<td>Student is at ease with content, but fails to elaborate.</td>
<td>Student does not have grasp of information; student cannot answer questions about subject.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Presentation was educational and professional.</td>
<td>Presentation left the audience with some questions but was overall, a learning experience.</td>
<td>Presentation was not educational for the audience nor could it be considered a learning experience.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>Student used a clear voice and correct, precise pronunciation of terms.</td>
<td>Student's voice is clear. Student pronounces most words correctly</td>
<td>Student mumbles, incorrectly pronounces terms, and speaks too quietly for students in the back of class to hear</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Public Service Announcement: Content</strong></td>
<td>Content was thorough, clear and appropriate.</td>
<td>Content was clear and appropriate.</td>
<td>Content was unclear or inappropriate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Announcement was educational and professional.</td>
<td>Announcement left the audience with some questions but was overall, a learning experience.</td>
<td>Announcement was not educational for the audience nor could it be considered a learning experience.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Response</strong></td>
<td>Audience response was positive, encouraged and appropriate; PSA was highly successful.</td>
<td>Audience response was positive; PSA was successful.</td>
<td>Audience response was minimal or negative; PSA was unsuccessful.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>Student used a clear voice and correct, precise pronunciation of terms.</td>
<td>Student's voice is clear. Student pronounces most words correctly and easily.</td>
<td>Student mumbles, incorrectly pronounces terms, and speaks too quietly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Career Search

Health Science
Introduction to Career Search

The students have spent the last few weeks in hands-on experiences within this Career Cluster, gaining an understanding of and an appreciation for various occupations. They should also have gained some understanding of what knowledge and skills are needed to enter these occupations. This unit of study is intended to help the student gain more detailed information about specific occupations that interest them. Before attempting the search, the students should take an interest survey to give them insight and direction. The students will then be ready to select their occupations of interest and complete the career search. Remember, a major objective of this course is for the students to gain an educated understanding of career options within specific clusters.

Teacher Preparation

There are several references available for teachers and students. View these references before finalizing the lessons and before students begin their career search. Visit with the school guidance counselor(s) at the beginning of this course to coordinate efforts and arrange time for the counselor to help. Contact the area career center to arrange class presentations and/or a tour of the center facilities and programs.

Note: Teacher enthusiasm for this unit will be a huge encouragement for students. Help them understand good planning now will save them time and money later. Emphasis the fact that plans can change and what they select now can be altered at any point in their high school and/or college life. Additionally, encourage students to share their findings with their parents or guardians.

Although there are many resources available in print and online for teachers and students, Missouri Kuder (http://mo.kuder.com/) is the official college and career planning program recognized by Guidance and Placement Services, Division of Career Education, Department of Elementary and Secondary Education. The school guidance counselor will be able to help access the website.

Prepare a bulletin board that displays various educational options after high school in this career cluster. Be sure to include both local and distant schools, as well as low to high cost schools.

Resources/References

- Missouri Kuder, http://mo.kuder.com
- Explore Careers, http://www.isseek.org/sw/10000.jsp
- Vocational Information Center, http://www.khake.com
- Technology Careers, http://www.fieldstotechnology.org
Suggested Activities

**Interest Assessment (if not taken previously)**
(This activity will only need to be completed once in the semester.) Take the interest assessment (Kuder® Career Search with Person Match), the skills inventory (Kuder Skills Assessment) and print out the Composite Report from these two. If possible, enlist the help of the school guidance counselor. Go to [http://mo.kuder.com/](http://mo.kuder.com/) to find the assessment documents.

**Career Search Identity**
You will want to make sure your students have the Health Science Pathway Chart (page 10) available so they can select occupations relevant to this career cluster search. Decide how many searches the students should complete. It is suggested that they complete one search for each of the occupational levels: technician, technologist and professional. Consider asking them to complete more if time permits.

Handout: *Definitions of the Three Levels of Occupations* (page 30)
This handout will give the students a brief description the three levels of occupations students might find in any Pathway. This is a way of recognizing different levels of education and skills needed for an occupation.

Handout: *MLA Citation Style* (page 35) and *APA Crib Sheet* (page 39)
The students will be asked to cite their sources of information. These handouts will give them the correct format for citing different sources. Review this with them. Consider checking with the school English teachers and/or librarian to confirm the style(s) being taught in your building.

**Career Center Presentation (if not completed previously)**
Contact your career center director or guidance counselor and make arrangements for a tour of the center facilities and a presentation of the programs the center offers. If it is not possible to tour the facilities, arrange for presentations by career center faculty in your classroom or lab. Make sure the presentations include photos. If possible, make a video tour of the center with interviews by faculty and students.

Handout: *Career Center Information* (teacher designed)
Design an information sheet with appropriate questions about the various programs offered by your career center in the cluster area of Health Science. Include such topics as the type of activities for students, certifications available, types of jobs after the program, transferability to college and characteristics students should possess to be successful in each program.

**Four-Year High School Plan**
Enlist the assistance of the guidance counselor. Have the students identify courses that will prepare them for post high school employment and/or higher education programs. Use Missouri Kuder and the *Personal Plan of Study* (Health Science) form (page 33) and also found at [http://dese.mo.gov/divcareered/career_plan.htm](http://dese.mo.gov/divcareered/career_plan.htm).
Student Definitions for Occupations Levels

TECHNICIAN
Technicians typically build, repair, maintain and/or operate specialized, complex, technical equipment and systems. A technician receives technical training through an apprenticeship program (on-the-job), a technical certification program or a two-year associate degree college program.

TECHNOLOGIST
Technologists typically work as technical managers and must be able to understand theories and apply the principles and concepts of mathematics, science and applications of computer fundamentals. Generally, a technologist is college educated with a four-year degree, which includes general education, technical specializations and technical management.

PROFESSIONAL
A professional is a person who has an occupation requiring training in the liberal arts or the sciences and usually advanced study (course work or training after the bachelor’s degree or a master’s degree) in a specialized Pathway such as, but not limited to, architects, engineers, upper level managers, certified accountants and educators.
Exploring Career Clusters
in Health Science

Pathways: A/V Technology and Film ● Printing Technology ● Visual Arts ● Performing Arts ● Journalism and Broadcasting ● Telecommunications

Student Career Search Identity

Student Name: _______________________________ Graduation Year: _______

Activity Completed: ___________________ Activity Assessment: ___________________

Your career search is designed to help you gain understanding and knowledge about career possibilities within your interest of the Career Cluster Health Science. Based on your recent experiences in this class and the interest assessment you took in Kuder, you will choose at least one occupational Pathway and an occupation from each of the three levels of occupations: technician, technologist and professional. When you have completed your search, you will:

1. know what level of education you must have.
2. know what technical skills you must have.
3. know what academic skills you must have.
4. know what the working conditions will be.
5. know what the average wage/salary will be.
6. know what the outlook for jobs will be.
7. know where the jobs will be found.

You should select your occupations from the Health Science Pathway Chart. Within each Pathway, occupations can be divided into three levels: 1) technician, 2) technologist and 3) professional. You are to select one occupation from each of the occupational levels which may be from one Pathway or all three Pathways. Your teacher can help you decide what level your choice of occupation falls under. Complete the following information:

Occupations I will research:

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Technician: Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Technologist: Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Professional: Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Exploring Career Clusters in Health Science


Student Career Search Activity

Pathway: ________________________ Student Name: ________________________

Activity Completed: ______ Activity Assessment: ______ Graduation Year: ______

Occupation: __________________ Level: __Technician__Technologist__Professional

Sources of Information - Refer to Bibliographic Style Sheet for correct format to cite references:

Work Activities - Provide at least four activities this person would do on the job:

Work Conditions - List at least three physical conditions you would work under and if you would be required to work with other people:

Are you required to work with other people? _____ Yes _____ No

Skills, Abilities and Knowledge - List the required skills, abilities and knowledge in each of the areas listed below:

Communication: __________________________________________________________

Math Level: __________________________________________________________________

Science Knowledge: __________________________________________________________________

Technical Knowledge: __________________________________________________________________

Tool/Equipment Skill: __________________________________________________________________

Preparation - Check all education or training you need to enter this occupation:

___ High School Diploma ___ GED ___ On-The-Job Training/Apprenticeship

___ Technical ___ University Other ________________________________________________

Length and Location of preparation: ________________________________________________

Wages - List the hourly wage and the annual expected income:

Per Hour: _____________ Per Month: _____________ Per Year: _________________

Outlook (Will there be jobs available in this occupation in the future?)

# of Jobs available: _____ In five years, 20____: _____ In ten years, 20____: _____

Major Employers and Job Locations - What type of companies will hire you and where will you live?

1. __________________________________________ 4. __________________________________________

2. __________________________________________ 5. __________________________________________

3. __________________________________________ 6. __________________________________________

Exploring Career Clusters
Missouri Center for Career Education
# PERSONAL PLAN OF STUDY

**Career Path:** Health Services  
**Career Cluster:** Health Science  
**Career Major:**

---

<table>
<thead>
<tr>
<th>High School</th>
<th>9th Grade</th>
<th>10th Grade</th>
<th>11th Grade</th>
<th>12th Grade*</th>
</tr>
</thead>
<tbody>
<tr>
<td>English I</td>
<td>English II</td>
<td>English III</td>
<td>English IV</td>
<td></td>
</tr>
<tr>
<td>Algebra I or Geometry</td>
<td>Geometry or Algebra II</td>
<td>Algebra II, Trigonometry or Pre-Calculus</td>
<td>Pre-Calculus, Trigonometry or Calculus</td>
<td></td>
</tr>
<tr>
<td>Biology I</td>
<td>Chemistry I</td>
<td>Anatomy &amp; Physiology or Physics</td>
<td>AP Biology or AP Chemistry</td>
<td></td>
</tr>
<tr>
<td>Geography/State History</td>
<td>World History</td>
<td>American History</td>
<td>Economics/Government</td>
<td></td>
</tr>
<tr>
<td>PE/Health or Fine Arts</td>
<td>PE/Health or Fine Arts</td>
<td></td>
<td>Personal Finance</td>
<td></td>
</tr>
<tr>
<td>Career Major Elective(s)</td>
<td>Career Major Elective(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career &amp; Family Leadership</td>
<td>Food Science</td>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Nutrition &amp; Wellness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Coursework</td>
<td>Additional Coursework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Language or Computer Technology</td>
<td>Foreign Language or Computer Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Area Career Center  
**Community College**  
**College/University**  
**Other**

---

**Date:** ______________________  
**Student Name:** ______________________  
**Student Signature:** ______________________  
**Advisor Signature:** ______________________  
**Parent/Guardian Signature (if required):** ______________________
# Exploring Career Clusters in Health Science

## Missouri Center for Career Education

### Postsecondary
- Dental Assisting
- Emergency Medical Technician
- Health Information Technology
- Massage Therapy
- Medical Laboratory Technician
- Practical Nursing
- Radiologic Technology
- Surgical Technology
- Biotechnology
- Dental Hygienist
- Funeral Services
- Occupational Therapy Assisting
- Paramedic
- Physical Therapy Assistant
- Registered Nursing
- Respiratory Care
- Athletic Training
- Biologist
- Dentist
- Dietetics
- Education
- Healthcare Administration
- Pharmacist
- Physical Therapy
- Physician
- Registered Nursing
- Social Work
- Veterinary Science
- Apprenticeship
- Military
- On-the-Job Training

### Work-based Learning Opportunities
- After School Employment
- Cooperative Occupational Experience/Clinicals
- Internship/Mentorship
- Job-Shadowing
- On-The-Job Training
- Service Learning

### Relevant High School Intra-Curricular/Co-Curricular Experiences
- Career and Technical Student Organization:
  - SkillsUSA
- Other high school activities:

### Graduation Exams
- ___U.S. Constitution
- ___MO Constitution

---

*12th* grade year should include at least 3 academic courses including college prep math or science.

*Note: All Career and Technical Education courses count as a practical arts credit.*

---

Adapted from National Career Cluster
This guide provides a basic introduction to the MLA citation style. It is based on the 6th edition of the MLA Handbook for Writers of Research Papers published by the Modern Language Association in 2003.

Copies are available at the Vanier Library Reference Desk, in the Webster Library Reference Collection and on 3-hour Reserve (Webster). The call number for the handbook is LB 2369 G53 2003.

The MLA Handbook is generally used for academic writing in the humanities. The handbook itself covers many aspects of research writing including selecting a topic, evaluating sources, taking notes, plagiarism, the mechanics of writing, the format of the research paper as well as the way to cite sources.

This guide provides basic explanations and examples for the most common types of citations used by students. For additional information and examples, refer to the MLA Handbook.

Parenthetical references in the text

Parenthetical documentation allows you to acknowledge a source within your text by providing a reference to exactly where in that source you found the information. The reader can then follow up on the complete reference listed on the Works Cited page at the end of your paper.

- In most cases, providing the author’s last name and a page number are sufficient:
  In response to rapid metropolitan expansion, urban renewal projects sought “an order in which more significant kinds of conflict, more complex and intellectually stimulating kinds of disharmony, may take place” (Mumford 485).

- If there are two or three authors, include the last name of each:
  (Winks and Kaiser 176)
  (Choko, Bourassa and Baril 258-263)

- If there are more than three authors, include the last name of the first author followed by “et al.” without any intervening punctuation:
  (Baldwin et al. 306)

- If the author is mentioned in the text, only the page reference needs to be inserted:
  According to Postman, broadcast news influences the decision-making process (51-63).

Parenthetical documentation is not used for electronic or web documents if there is no pagination.

Further examples and explanations are available in Chapter 6 of the MLA Handbook.

Works Cited

The alphabetical list of works cited that appears at the end of your paper contains more information about all of the sources you’ve cited allowing readers to refer to them, as needed. The main characteristics are:

- The list of Works Cited must be on a new page at the end of your text
- Entries are arranged alphabetically by the author’s last name or by the title if there is no author
- Titles are underlined (not italicized) and all important words should be capitalized
- Entries are double-spaced (for the purposes of this handout, single-spacing is used)

Below are some examples of the most common types of sources including online sources (web and databases).
Book with one author

Book with two or three authors

Book with more than three authors

Two or more books by the same author
Replace the author’s name by three hyphens and arrange alphabetically by the book’s title

Anthology or compilation

Work in an anthology or an essay in a book

Book by a corporate author
Associations, corporations, agencies and organizations are considered authors when there is no single author

Article in a reference book or an entry in an encyclopedia
If the article/entry is signed, include the author’s name; if unsigned, begin with the title of the entry

A translation

A government publication

Book in a series

Article in a journal

Article in a newspaper or magazine

A review

Television or radio program

Sound recording

Film, video recording or DVD

Musical composition, published score

Work of art, photographed, in a book

• Article from a database
Provide the same information as you would for a printed journal article and add the name of the database, the platform of the database (if applicable), the access provider (Concordia University Libraries), the date of access and the general URL for the database
NOTE - If the article is in HTML only, pagination is not required. However, you can include the start page followed by a hyphen, a space and then a period. If a PDF version is available, provide pagination.
• Web page


• Internet site


• Article in online periodical


Revised: March 2004
# APA CRIB SHEET

**Dr. Abel Scribe PhD - October 2006**

The **APA Crib Sheet** is a concise guide to using the style of the American Psychological Association in writing research papers. It is based on the current fifth edition of the APA *Publication Manual*. The latest version is at www.dostyles.com. The Crib Sheet is routinely updated; it is the product of many contributors. This version was revised in Fall 2006 by Dr. Abel Scribe PhD. Doc Scribe is not affiliated in any way with the APA—the style sheet is free! Freeware Copyright 2006 by Dr. Abel Scribe PhD.

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## READ ME

APA style is the style of writing used by journals published by the American Psychological Association (APA). The style is documented in the APA *Publication Manual* (5th ed., 2001). The APA *Manual* was first published in 1955, but the product of a 1928 conference of anthropologists and psychologists who gathered to discuss the form of journal manuscripts and to write instructions for their preparation (APA, 1928, p. xxv). The APA Manual has the guidelines as a separate document called the *Publication Manual* in 1955. Today the manual is in its fifth edition, and APA style is widely recognized as a standard for scientific writing in psychology and education, used by over a thousand research journals.

**APA Manual at Amazon.com:** (Paperback $26.95) (Spiral Bound $33.95)

Some of the more common rules and reference sources in APA style are covered in the APA Crib Sheet. However, this document is no substitute for the 440 page *APA Manual*, which has evolved into a comprehensive style guide. The APA Manual should be purchased by any serious student preparing an article, thesis, or dissertation in psychology or education. The reader can refer to the APA Crib Sheet. The APA Crib Sheet has no affiliation with the American Psychological Association. It began as a "community service" project by Professor Dewey, and has become the most widely consulted resource on APA style on the Internet.

The APA Manual draws a distinction between *final* manuscripts such as class papers, theses, and dissertations, and *copy* manuscripts to be submitted for review and publication. The APA Crib Sheet follows the instructions given in chapter six for "Material Other Than Journal Articles" (APA, 2001, pp. 321-336). Final manuscripts differ from copy manuscripts in these ways:

- **Spacing:** "Double spacing is required throughout most of the manuscript. When single spacing would improve readability, however, it is usually encouraged. Single spacing can be used for table titles and headings, figure captions, references (but double spacing is required between references), footnotes, and long quotations" (APA, 2001, p. 328).

- **Figures, tables, and footnotes:** "In a manuscript submitted for publication, figures, tables, and footnotes are placed at the end of the manuscript. In these and dissertations, such material is frequently incorporated at the appropriate point in text as a convenience to readers" (APA, 2001, p. 325).

The most notable additions and changes to 5th edition of the APA Manual (2001) include:

- **Electronic Sources:** Requires new formats in references. The formats previously featured on the APA Web site are no longer supported. Several formats are included in the Crib Sheet.

- **Italic or Underline?** "Use the functions of your word-processing program to create italic, bold, or other special fonts or styles following the style guidelines specified in this Publication Manual" (APA, 2001, p. 286).

- **Hanging Indents:** "APA publishes references in a hanging indent format. If a hanging indent is difficult to accomplish with your word-processing program, it is permissible to indent your references with paragraph indents" (APA, 2001, p. 295).
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Acknowledgements are noted at the end of the Crib Sheet. The APA Crib Sheet can be freely distributed, but not sold. A good faith effort has been made to assure the accuracy of this document, both by the author and by the many people who have offered suggestions. The APA Crib Sheet has benefited greatly from their insight and expertise. The more comprehensive Writer's Guide to APA Psychology is available free at www.docstyles.com.

APA EDITORIAL STYLE (TEXT RULES)

These Style Notes cover details commonly encountered when drafting a research paper. These are also the details that knowledgeable readers are likely to note when they get them wrong. You may elect to apply your own best judgment on the more esoteric features, as long as you remember to be slavishly consistent throughout your paper.

Abbreviations

Use acronyms only for long, familiar terms (MMPI).
- Explain what an acronym means the first time it occurs: American Psychological Association (APA).
- If an abbreviation is commonly used as a word, it does not require explanation (IQ, LSD, REM, ESP).
- To form plurals of abbreviations, add s alone, without apostrophe (PhDs, IQs, vols., Eds).

Use periods when making an abbreviation within a reference (Vol. 3, p. 6, pp. 121-125, 2nd ed.)
- Use two-letter postal codes for U.S. state names (e.g., GA for Georgia) in references (write the state name out in text).
- Use the abbreviation pp. (plain text) in references to newspaper articles, chapters in edited volumes, and text citations only, not in references to articles in journals and magazines.
- Use hr for hour or hours, min for minutes, s for seconds, m for meter or meters (all in plain text, no period, no bold font).
- In using standard abbreviations for measurements, like m for meter, do not add an s to make it plural (100 seconds is 100 s).

Do not use Latin abbreviations in the text unless they are inside parentheses. An exception is made for et al. when citing a source. For example, "Smith et al. (2002) found monkeys measured higher in IQ tests than grad students." Instead, write out the equivalent word or phrase:

cf. [use compare] etc. [use and so forth] viz. [use namely]
e.g. [use for example] i.e. [use that is] vs. [use versus]

- Do not use the old abbreviations for subject, experimenter, and observer (S, E, O).
- Do not use periods within degree titles and organization titles (PhD, APA).
- Do not use periods within measurements (ft, ft s) except inches (in.).

Avoiding Biased and Pejorative Language

In general, avoid anything that causes offense. The style manual makes the following suggestions:

DO NOT USE . . .

| ethnic labels (e.g., Hispanic) | geographical labels (e.g., Mexican Americans if from Mexico) |
| "men" (referring to all adults) | "men and women" |
| "homosexuals" | "gay men and lesbians" |
| "depressives" | "people with depression" |

Correct Use of the Terms "Gender" and "Sex"

- The term "gender" refers to culture and should be used when referring to men and women as social groups, as in this example from the Publication Manual: "sexual orientation rather than gender accounted for most of the variance in the results; most gay men and lesbians were for it, most heterosexual men and women were against it" (APA, 2001, p. 63).
- The term "sex" refers to biology and should be used when biological distinctions are emphasized, for example, "sex differences in hormone production."
- Avoid gender stereotypes. For example, the manual suggests replacing "An American boy's infatuation with football" with "An American child's infatuation with football" (see APA, 2001, p. 66).

Sensitivity to Labels

Be sensitive to labels. A person in a clinical study should be called a "patient," not a "case." Avoid equating people with their conditions, for example, do not say "schizophrenics," say "people diagnosed with schizophrenia." Use the term "sexual orientation," not "sexual preference." The phrase "gay men and lesbians" is currently preferred to the term "homosexuals." To refer to all people who are not heterosexual, the manual suggests "lesbians, gay men, and bisexual women and men" (APA, 2001, p. 67).

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Ethnic labels can be tricky, and the manual has a lot to say about them. For example, "American Indian" and "Native American" are both acceptable usages, but the manual notes that there are nearly 450 Native American groups, including Hawaiians and Samoans, so specific group names are far more informative, such as Hopi or Lakota.

- Capitalize Black and White when the words are used as proper nouns to refer to social groups. Do not use color words for other ethnic groups. In racial references, the manual simply recommends that we respect current usage. Currently both the terms "Black" and "African American" are widely accepted, while "Negro" and "Afro-American" are not. These things change, so use common sense.

- The terms Hispanic, Latino, and Chicano are preferred by different groups. The safest procedure is use geographical references. Just say "Cuban American" if referring to people from Cuba.

- The term Asian American is preferable to Oriental, and again the manual recommends being specific about country of origin, when this is known (for example, Chinese or Vietnamese). The manual specifies that hyphens should not be used in multword names such as Asian American or African American.

- People from northern Canada, Alaska, eastern Siberia, and Greenland often (but not always!) prefer Inuk (singular) and Inuit (plural) to "Eskimo." But some Alaska natives are non-Inuit people who prefer to be called Eskimo. This type of difficulty is avoided by using geographical references. For example, in place of "Eskimo" or "Inuit" one could use "indigenous people from northern Canada, Alaska, eastern Siberia, and Greenland."

- In referring to age, be specific about age ranges; avoid open-ended definitions like "under 16" or "over 65." Avoid the term elderly. Older person is preferred. Boy and Girl are acceptable referring to high school and younger. For persons 18 and older use men and women.

In general, call people what they want to be called, and do not contrast one group of people with another group called "normal." Write "we compared people with autism to people without autism" not "we contrasted autistic to normals." Do not use pejorative terms like "stroke victim" or "stroke sufferers." Use a more neutral terminology such as "people who have had a stroke." Avoid the terms "challenged" and "special" unless the population referred to prefers this terminology (for example, Special Olympics). As a rule, use the phrase "people with ____" (for example, "people with AIDS," not "AIDS sufferers").

**Capitalization**

- Capitalize formal names of tests (Stroop Color-Word Interference Test).
- Capitalize major words and all other words of four letters or more, in headings, titles, and subtitles outside reference lists, for example, "A Study of No-Win Strategies."
- Capitalize names of conditions, groups, effects, and variables only when definite and specific. (Group A was the control group; an Age x Weight interaction showed lower weight with age.)
- Capitalize the first word after a comma or colon if, and only if, it begins a complete sentence. For example, "This is a complete sentence, so it is capitalized." As a counter example, "no capitalization here."
- Capitalize specific course and department titles (GSU Department of Psychology, Psych 150).
- Do not capitalize generic names of tests (Stroop color test). "Stroop" is a name, so it remains capitalized.
- Capitalize nouns before numbers, but not before variables (Trial 2, trial x).
- Do not capitalize names of laws, theories, and hypotheses (the law of effect).
- Do not capitalize when referring to generalities (any department, any introductory course).

**Commas**

- Do not use commas to separate parts of measurement (9 lbs 5 oz). Use the metric system, as a rule.
- Use commas before "and" in lists, for example, height, width, and depth.
- Use commas between groups of three digits, for example, 1,453.
- Use commas to set off a reference in a parenthetical comment (Patrick, 1993).
- Use commas for a sentence within a paragraph or sentence. For example, "three choices are (a) true, (b) false, and (c) don't know." Use semicolons for a sentence if there are commas within the items. For example, (a) here, in the middle of the item, there are commas; (b) here there are not; (c) so we use semicolons throughout.
- Use commas in exact dates, for example, April 18, 1992 (but not in April 1992).

**Compound Words**

**Compound words** are two or more words that work together in a specified order. This order cannot be reversed or rearranged without destroying the compound word's meaning. A dictionary is the best guide to spelling and usage. If it is not in the dictionary it is not likely a hyphenated compound, but check the following rules for possible exceptions. If it is in the dictionary, use the first spelling given.

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“With frequent use, open or hyphenated compounds tend to become closed (on-line to on-line to online). Chicago’s general adherence to Webster’s dictionary does not preclude occasional exceptions when the closed spellings have become widely accepted, pronunciation and readability are not at stake, and keystrokes can be saved” (CMS, 2003, p. 300).

General Rules
Full-time compound words are hyphenated whatever their role in a sentence—as an adjective or a noun. “The court-martial hearing is set for 1000 hours. The hearing will determine whether a court-martial is warranted.” Court-martial is a full-time compound word (as is “full-time”). This information is given in a dictionary.

Conditional compounds are hyphenated as adjectives, but not when used as nouns.
1. Adjectival compound. “The counselor suggested a role-playing technique to reduce the stress of encounters, but cautioned that role-playing alone would not solve the problem.” Role-playing is a compound adjective, but not a compound noun.
2. Add a hyphen to any prefix attached to a proper noun, capitalized abbreviation, or number. For example, the post-Freudian era, the pre-1960s civil rights movement, the many non-ASA journals in sociology.
3. Fractions. “When... a fraction is considered a single quantity, it is hyphenated [whether it is used as a noun or as an adjective]” (CMS, 2003, p. 383). One-fourth the audience was comprised of former refugees. A two-thirds majority was required to pass the initiative.
4. Made-up compound. A compound may be of the made-up-for-the-occasion variety. “The up-to-date figures were unadjusted.” But when these terms are used in the predicate they are not hyphenated. The compound word was made up for the occasion. “The unadjusted figures were up to date.”
5. Serial compounds. When two or more compound modifiers have a common base, this base is sometimes omitted in all but the last modifier, but the hyphens are retained. Long- and short-term memory, 2-, 3-, and 10-minute trials.
6. Do not hyphenate a compound term using an adverb ending in -ly. “The widely used term was not yet in the dictionary. Such clearly understood terms are eventually documented if they endure.”

Avoid confusion! A re-creation is not the same as recreation. Does the fast sailing ship refer to a ship that was designed for speed, or one that is making an unusually fast passage? If the former, then it is a fast sailing ship. If it is the latter, then it is a fast-sailing ship (CMS, 1993, p. 203).

Prefixes
Through long usage most common prefixes do not require a hyphen: after-effect, anti-freeze, co-op, Internet, microwave, oversight, preempt, re-examine, supermarket, unbiased, underground. There are many exceptions.

When in doubt check a dictionary. Note the following exceptions:
1. Same two letters. If the prefix puts the same two letters together, a hyphen is sometimes inserted. For example, write: anti-industrial, co-op, post-native, post-trial. But also write: cooperative, coordinate, non-negotiable, overrate, overreach, overrule, reelect, unnamed.
2. Superlatives-diminutives. Some prefixes, best-, better-, ill-, lesser-, little-, well-, are hyphenated when they precede the noun they modify, but are not hyphenated when preceded by a modifier, or when used as a predicate adjective. The ill-advised attack failed, the strategy was ill advised.
3. Weird terms. If the prefix creates an unfamiliar or weird term, a hyphen may improve clarity. The Turabian Guide offers these examples: pro-ally, anti-college instead of pro-ally, anti-college (1976, p. 101).

The following prefixes always require a hyphen.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Example</th>
<th>Prefix</th>
<th>Example</th>
<th>Prefix</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>all-</td>
<td>all-powerful leader</td>
<td>great-</td>
<td>great-grandfather</td>
<td>self-</td>
<td>self-reliant person</td>
</tr>
<tr>
<td>ever-</td>
<td>ever-faithful friend</td>
<td>half-</td>
<td>half-baked plan</td>
<td>still-</td>
<td>still-active volcano</td>
</tr>
<tr>
<td>ex-</td>
<td>ex-president</td>
<td>much-</td>
<td>much-loved pastor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Emphasis: Italics or Quotation Marks?
Italicize or underline the titles of books, species names, novel or technical terms and labels (the first time only), words and phrases used as linguistic examples, letters used as statistical symbols, and the volume numbers in references to journal articles.

Add emphasis to a word or short phrase by putting it italics (the first time only). Use this sparingly!

Add emphasis to a word or phrase in a quotation with italics, followed by the note [italics added] in brackets.

Note a word used as a word, or a foreign term, with italics, for example, hitler means hit in German.

Introduce a keyword or technical term (the neo-psychoanalytic theory), or identify endpoints on a scale (poor to excellent) with italics.

Do not italicize foreign words that have entered common usage (et al., a priori, laissez-faire, arroyo).

Use quotation marks for:

odd or ironic usage the first time—the “outrageous” use of social security funds to finance the deficit.

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- article and chapter titles cited in the text but not in the reference list. (In Smith's (1992) article, "APA Style and Personal Computers," computers were described as "here to stay" (p. 311).

Do not use quotes to hedge, cast doubt, or apologize (e.g., he was "cured"). Leave off the quotes.

Numbers
"Use figures to express numbers 10 and above and words to express numbers below 10" as long as the numbers below 10 do not express precise measurements and are not grouped with numbers above 10 (APA, 2001, p. 122).
- Spell out common fractions, common expressions, and centuries (one-half, Fourth of July, twentieth century).
- Spell out numbers beginning sentences (Thirty days hath September . . .).
- To make plurals out of numbers, add s only, with no apostrophe (the 1950s).
- When numbers below 10 must be mixed with numbers above 10 in the same sentence they should be written as numerals. For example, write "the students trying out for the soccer team included 5 girls and 16 boys."
- Use words and numerals with two numbers in series (five 4-point scales).
- Use combinations of numerals and written numbers for large sums (over 3 million people).
- Use numerals for exact statistical references, scores, sample sizes, and sums (multiplied by 3, or 5% of the sample). "We studied 30 subjects—two year olds—who cried an average of 1 hr 20 min per day.
- Use metric abbreviations with physical measure (4 km) but not when written out (many meters distant).
- Use the percent symbol (%) only with figures (5%) not with written numbers (five percent).
- Put a leading zero before decimal fractions less than one (e.g., .025 km), unless the fraction can never be greater than one as in probabilities (e.g., . p < .01).
- Ordinal numbers follow the same rules as other numbers. Spell out ordinals below 10: first, second, . . . ninth. Use numerals for ordinals 10 and above: 10th, 43rd, 99th, and so on. Exception—the twentieth century.

APA style has a special set of numbers that are always written as numerals. These are "numbers that represent time; dates; ages; sample, subsample, or population size; specific numbers of subjects or participants in an experiment; scores and points on a scale; exact sums of money; and numerals as numerals" (APA, 2001, p. 124).

Statistics
- Most symbols for statistics are placed in italics (exceptions are very rare).
- Place a space before and after all arithmetic operators and signs ( = , , < , > , - , + , etc.).

Nonstandard symbols are used for some common statistics (check the APA Manual, Table 3.9, for a complete list of accepted symbols):
- \( M = \text{mean} \) \( (\bar{X}) \), \( \text{Min} = \text{median} \), \( SD = \text{standard deviation} \) \( (\sigma) \), \( SS = \text{sum of squares} \) \( (\Sigma X^2) \).

Descriptive Statistics & Inferential Statistics

Descriptive statistics give summary information about a sample or population, such as the average (mean) or standard deviation of some characteristic. For example, "Abigail Scribe has a GPA of 3.65, which is below the average for students accepted at Ivy and Oak University \( (M = 3.85, SD = 0.21) \)." Descriptive statistics may be presented in the text with the appropriate syntax (e.g., "a GPA of 3.65"). When referred to indirectly they are set in parentheses, as with \( (M = 3.85, SD = 0.21) \).

Inferential statistics reason from a sample to the characteristics of a population, often expressed as a probability. For example, "Abbie Scribe has a chance of being accepted at Ivy and Oak University \( (p < .15) \), but counselors advise her that her odds are not great based on last year’s applicants. \( \chi^2(2, N = 2247) = 2.81, p < .15 \) (one-tailed)." Inferential statistics are presented in the text (no parentheses) with "sufficient information to allow the reader to fully understand the results of the analysis . . . [Which] depends on the analytic approach selected" (APA, 2001, p. 138).

Examples from the APA Manual (2001):
- \( \chi^2(6) = 1.99, p = .03 \) (one-tailed), \( d = .50 \), \( \chi^2(4, N = 90) = 10.51, p = .03 \).

The first number in parentheses is degrees of freedom of the analysis; the N in the \( \chi^2 \) statistic is the sample population.

Punctuation & Lists
- Do not use a colon or other punctuation after an introduction which is not a complete sentence such as this one, or any other sentence in the body of text which flows into an extended quote. The quote "picks up where the sentence leaves off" and provides the punctuation.
- Use a dash (an en dash or double hyphen) when there is a sudden interruption like this one—zoiks!—in the flow of a sentence. Overuse "weakens the flow of the writing" (APA, 2001, p. 81).
- Use parentheses to introduce an abbreviation, for example, the galvanic skin response (GSR).

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- When enumerating a series of topics or subjects: (a) introduce each topic with a letter in parenthesis, (b) following a colon, or (c) emphasize their distinctiveness. This is called enumeration or serialization.
- When listing separate paragraphs in a series, use a number and a period, not parentheses and letters.
  1. The first paragraph goes here.
  2. The second paragraph goes here.

Space once after all punctuation, including:
- after commas, colons, and semicolons;
- after punctuation marks at the ends of sentences;
- after periods that separate parts of a reference citation
- after periods of the initials in personal names (e.g., J. R. Zhang).

Do not space after internal periods in abbreviations (e.g., a.m., i.e., U.S.) or around colons in ratios (APA 2001, 291).
- No bullets? The APA Publication Manual makes no mention of using bullets in research papers. There are no examples of the use of bullets in recent publications. "Bullets (heavy dots . . . ) make good visual signposts in unnumbered lists but can lose their force if used too frequently" (CMS, 2003, p. 272).

Quotations
Quotations must be placed in quotes or indented as a block quote. All quotations must include a citation referring the reader to the source document. As a matter of form quotations should be integrated into the flow of your text, and may be edited to do so.
- Reproduce a quote exactly. If there are errors, introduce the word sic italicized and bracketed—for example, "the speaker stigmatized [sic] terribly"—immediately after the error to indicate it was in the original.
- When the author is introduced in the text the page number follows the quotation, but the date follows the author's name. Smith (1999) reported that "the creature walked like a duck and quacked like a duck" (p. 23). The abbreviation "p." for page ("pp." for pages) is lower case.
- Without an introductory phrase, the author, date, and page are placed together. For example, It was reported that "the creature walked like a duck and quacked like a duck" (Smith, 1999, p. 23).
- If a quote begins in what is mid-sentence in the original, the first word may be uppercased to open a sentence. "Quotations should be integrated into the flow of your text." Do not write "[Q]quotations should be . . ."
  Conversely, a lowercased word should be lowercased "as a matter of form" without indicating the change.
- Expand or clarify words or meanings in a quotation by placing the added material in quotes. For example, "They [the Irish Republican Army] initiated a cease-fire.
- Use three dots with a space before, between, and after each (ellipsis points) when omitting material, four if the omitted material includes the end of a sentence (with no space before the first). Do not use dots at the beginning or end of a quotation unless it is important to indicate the quotation begins or ends in mid-sentence.
- "The punctuation mark at the end of a sentence [in a quotation] may be changed to fit the syntax [without indicating the change in the text]" (APA, 2001, p. 119).
- Double quotation marks may be changed to single quotes, and the reverse, without indicating the change.
- Add emphasis in a quotation with italics, followed by the note [italics added] in brackets.

Block Quotes
For quotations over 40 words in length, indent and single space the whole block (double space in papers for review or publication). Indent the first line five spaces (one-half inch, 1.25 cm) if there are paragraphs within the long quotation after the first. Add the citation after the final punctuation in a block quote.

Block quotes may be single spaced in research papers, but must be double spaced in copy manuscripts submitted for publication or review (see APA, 2001, p. 326).

Terminology
Despite etymological advice to the contrary, APA style insists that data is the plural form of datum. Preferred forms of words are (see APA, 2001, p. 89):
- appendix (appendices, not appendices)
- datum (data is plural only)
- matrix (matrices, not matrixes)
- phenomenon (phenomena is plural)
- schema (schemas is plural)

Internet terms are in a state of transition. Whatever form you use, be consistent!
- e-mail The hyphenated form is found in the AMA, APA, CMS, and MLA style manuals! The e is never uppercased except at the beginning of a sentence.
- Internet [Net] Internet is a proper noun.
- electronic mailing list [listserv] The APA manual notes that Listserv is a trademarked name for an electronic mailing list (the term it prefers instead).

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Page Formats

The APA Manual notes that "the size of the type should be one of the standard typewriter sizes (pica or elite) or, if produced from a word processing program, 12 points" (2001, p. 285).

The body of the paper should be in a serif typeface (like Courier or Times Roman) with lettering on figures in a sans serif typeface (such as Helvetica or Arial).
Text Details
- Abstracts are limited to 120 words (APA, 2001, p. 13).
- Double space the text, but single space within block quotes, references, and the abstract. This is suggested in chapter 6 of the APA Manual, "Material Other than Journal Articles" (see "Read Me" at the beginning of the Crib Sheet).
- Footnotes are rarely used in APA papers, except for author affiliation and contact information—the author note. If you need to add an explanatory note make it an endnote.
- Hyphenation should not occur at the end of lines, only between words when necessary. Right justifying a paper can introduce ambiguities with uncertain hyphenation, a ragged right margin is preferred in research writing.
- Indent paragraphs, block quotes, and hanging indents one-half inch (1.25 cm or five to seven spaces).
- Keyword emphasis requires the use of italics, but only the first time a term is used. If the intent is to indicate odd or ironic usage, use quotation marks.
- Margins should be at least 1" all around (about 2.5 cm).
- Page numbers are required on every page. Number pages consecutively.
- The page header summarizes the title in a few words. The header and page number go inside the margin space, double spaced above the text, next to the right margin, except on the title page.
- Word processor features—such as bold and italic fonts and hanging indents—should be used as appropriate.

Headings?
APA headings follow a complex hierarchy, with provision for up to five levels. These come, in descending order, as levels 5, 1, 2, 3, 4. But if up to three levels of headings are required, use levels 1, 3, and 4, in that order. If four levels are required, insert level 2 between levels 1 and 3. If five levels are required, start with level five and work down in order (5, 1, 2, 3, 4). Confused? Most papers will need no more than three levels. To avoid confusion these are labeled A, B, and C (APA levels 1, 3, and 4 respectively) (see APA, 2001, pp. 114–115).

Level A Heading Centered and Set in Heading Caps

Level B Heading: At Left Margin, Italicized, in Heading Caps

Level C heading: Indented, Italicized, Sentence Case. These paragraph or run-in headings end with a period (or other punctuation); are not complete sentences.

Use headings in the order presented. Level A and B headings do not end with punctuation except to add emphasis with an exclamation point or question mark. Do not begin a paper with the heading Introduction, this is understood.

Line Spacing?
Double-spacing is required throughout most of the manuscript. When single-spacing would improve readability, however, it is usually encouraged. Single spacing can be used for table titles and headings, figure captions, references (but double-spacing is required between references), footnotes, and long quotations" (APA, 2001, p. 926). This directive applies only to research papers presented as final manuscripts. See "Read Me."

References & Tables
Table Notes
Number tables consecutively as they appear in your text. Use only whole numbers, no 5a, 5b, etc. See recent issues of the American Psychologist or other APA journals for more complex table layouts. "Tables are efficient, enabling the researcher to present a large amount of data in a small amount of space" (APA, 2001, p. 147).
- Place tables close to where they are first mentioned in your text, but do not split a table across pages. (Tables in papers submitted for review or publication are placed on separate pages at the end of the paper.)
- Label each table beginning with the table number followed by a description of the contents in italics.
- Horizontal rules (lines) should be typed into tables; do not draw them in by hand.
- Each row and column must have a heading. Abbreviations and symbols (e.g., "%" or "%") may be used in headings.
- Do not change the number of decimal places or units of measurement within a column. "Use a zero before the decimal point when numbers are less than one" (APA, 2001, p. 128). Write "0.23" not ".23" unless the number is a statistic that cannot be larger than one, for example a correlation r = .55, or a probability p < .01.
- Add notes to explain the table. These may be general notes, footnotes, or probability notes.
- General notes follow the word Note: (in italics) and are used to explain general information about the table, such as the source.
- Footnotes are labeled "a, b, c, etc." and set in superscript. They explain specific details.

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- Probability notes are indicated by asterisks and other symbols to indicate statistical significance. This is explained in the probability note at the bottom of the table. "Assign a given alpha level the same number of asterisks from table to table within your paper, such as "p < .05" and "p < .01," the larger [greater] probability receives the fewest asterisks (the smaller or lesser probability gets more asterisks)" (APA, 2001, p. 170).
- You may both single space and double space within a table to achieve clarity. Tables in papers submitted for review or publication (only) must be double spaced throughout.

**References**


**RESEARCH DOCUMENTATION**

Text Citations: Use the author-date format to cite references in text. For example, as Smith (1990) points out, a recent study (Smith, 1990) shows... Every source cited in your text—and only those sources cited in your text—are referenced in the reference list.

<table>
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<th>Citation</th>
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<td>(APA, 2001, chap. 6)</td>
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<td>(A. B. Smith, personal communication, January 1, 2004)</td>
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<td>(Freud, 1920-1933)</td>
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- Citations with three to five authors list all authors in the first citation; the lead author et al. (and others) in subsequent citations: first, (Smith, Jones, Andrews, Baker, & Charles, 2001); next, (Smith et al., 2001).
- Citations with six or more authors list the lead author et al. in all citations.

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- The first time "et al." is used in a citation the year is included. If the citation is repeated in the same paragraph, the year may be omitted. For example (Smith et al., 2002, p. 22), then (Smith et al., p. 23).
- Join the last name in a multiple-author citation with and (in text) or an ampersand (&) in reference lists and parenthetical citations. For example: As Smith and Sarason (1990) point out, the same argument was made in an earlier study (Smith & Sarason, 1990).
- If a group is readily identified by an acronym, spell it out only the first time. For example, "As reported in a government study (National Institute of Mental Health [NIMH], 1991) . . . . . . . . . The next citation gives just the initials and year, (NIMH, 1991).
- If the author is unknown or unspecified, use the first few words of the reference list entry (usually the title), for example: ("Study Finds," 1992). Remember to use heading caps in the text when noting a title; always use sentence caps in references!
- Reprints cite the original publication date and reprint date if both are known, for example: (James, 1890/1983). Translations of classics note the date of the translation: (Aristotle, trans. 1931).
- For e-mail and other "unrecoverable data" use personal communication, for example: (C. G. Jung, personal communication, September 28, 1933). These do not appear in the reference list.
- Always cite page numbers after quotations. For example, the author stated, "The effect disappeared within minutes" (Lopez, 1993, p. 311). Or, Lopez (1993) found that "the effect disappeared within minutes" (p. 311).
- If there are two or more citations that shorten to the same lead author and date, give as many additional names as needed to identify them, e.g., (Smith, Jones, et al., 1991) and (Smith, Burke, et al., 1991). When citing multiple works by the same author, arrange dates in order. In general, use letters after years to distinguish multiple publications by the same author in the same year, e.g., (Johnson, 1988, 1990a, 1990b).

Reference Lists
List references alphabetically by author. When there are multiple works by the same author, list references by date, the most recent last.

1. Use prefixes if they are commonly a part commonly of the surname (e.g., de Chardin comes before Decker, MacGill comes before McGill). But do not use von (e.g., write: Helmholtz, H. L. F. von).
4. Alphabetize corporate authors by first significant word. Do not use abbreviations in corporate names.

Abbreviations
Use the abbreviation p. (pp.) before page numbers in encyclopedia entries, multi-page newspaper articles, chapters or articles in edited books, but not in journal or magazine article citations, where numbers alone are used.

The following abbreviations are commonly used in APA references:

| chap. | chapter |
| ed. | edition [Rev. ed. revised] |
| ed. (Eds.) | editor(s) |
| No. number | p. (pp.) page (pages) |
| Pt. part | Suppl. supplement |
| para. paragraph | Tech. Rep. technical report |
| Trans. translator | Vol. volume (as in Vol. X) |
| vols. volumes (as in xx vols.) |

Basic Rules
1. Authors & editors. List up to six authors to a work, if more than six add et al. Invert all authors’ names, using first & middle initials. With two or more authors place an ampersand & < before the final name. Note, unless they are serving in place of authors in a reference, editors’ names go in their normal order (First, M. Last).
2. Character Spacing. Space once after all punctuation except inside abbreviations, ratios, and URLs where no space is required (APA, 2001, pp. 290–291). Space once after the periods in references and initials.
4. Date. Use the month-day-year format for full dates, but see the sample references for newspapers.
5. E-documents. When quoting electronic documents without page numbers, cite paragraph numbers if given, after the paragraph symbol or abbreviation para. (e.g., Smith, 2000, ¶ 17). If there are no paragraph numbers, cite the nearest preceding section heading and count paragraphs from there (e.g., Smith, 2000, Method section, para. 4).
6. E-mail and other "unrecoverable data" are cited as a personal communication, for example: (A. B. Carter, personal communication, April 1, 2000). These do not appear in the reference list.
7. Titles of Works. All titles require sentence caps (all words lowercase except for the first word, first word after a colon, and proper nouns). Article titles are not placed in quotes in references (they are when mentioned in the text). Italicize titles of books, reports, working and conference papers, dissertations, and similar documents.

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Sample References
Anonymous or Unknown Author:
Citation: (“Annual Smoking,” 2002). Use heading caps when citing titles in text citations.

Articles in Research Journals:
Citation: (Abelson, 1997). APA style places the volume (but not the issue number in a volume) in italics with the name of the journal.

Two to three authors:
Citation: (McGlynn & Brook, 2001).

Three to five authors:
First Citation: (Miller, Emanuel, Rosenstein, & Straus, 2004); next citations: (Miller et al., 2004).

Six authors:
All citations: (Mokdad et al., 2001).

More than six authors:
All citations: (McGlynn et al., 2003). In the reference list the first six authors, then et al.

Group author & online variants:
Citation: (Hypericum Depression Trial Study Group, 2002). Cite the full name of a corporate author.

Electronic formats:
Many documents are now available online as exact facsimile copies of the print original (usually in Adobe’s PDF format). References to these facsimiles just add the note [Electronic version] to the reference. If the document is not an exact copy of a print version—(e.g., the format differs from the print version or page numbers are not indicated)—add the date you retrieved the document and the URL to the reference (APA, 2001, p. 271).


Annual Review:

Book review:

Journals paged by issue (online):
Conway, L. G., III. (2001). Number and age of citations in social-personality psychology over the lifespan of the field: Older and wiser? *Dialogue*, 16(2), 14-16.
Add the issue in the volume (in parentheses in plain text) to these reference after the volume number.

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Regular column:

Special issue or supplement:

Books and Chapters:
Group author:
Citation: (American Psychological Association [APA], 2001); next citation (APA, 2001). Note: "Author" is used for the publisher's name above when the author and publisher are identical, an APA quirk.
Three to five authors:
Citation: (Booth, Colombo, & Williams, 1995); next citation (Booth et al., 1995).
Chapter or section in a book (online & print):
Citations: (Beers & Berkow, 1999, chap. 189); (Stephan, 1985).
Edited book (two or more editors):
Edition other than the first (two authors):
Reprint/translation (one author & editors):
(Original work published 1885)
Citation: (Ebbinghaus, 1885/1913).
Conference Papers:
Published (referred as a chapter in an edited book):
Unpublished (more than six authors):
Newspapers and Magazine:
Magazine article:
Newspaper articles (online/letter):
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Reference Works:

Multivolume references:

Statistical abstract:

Reports, Software, Theses:
- Computer software:

  government report online accessed through GPO database:

  Citation: (National Institute of Mental Health [NIMH], 2002); next citation (NIMH, 2002).

Monograph online:

Pamphlet-brochure

Technical report (print/online versions):

Theses or dissertation:

Web Pages:
- Purdue University Online Writing Lab. (2003). Using American Psychological Association (APA) format (Updated to 5th edition). Retrieved February 18, 2003 from the Purdue University Online Writing Lab at http://owl.english.purdue.edu/handouts/research/v_apa.html

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State Abbreviations Used in References

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Acknowledgements

The APA Crib Sheet is built upon the venerable APA Crib Sheet by Professor Dowey (see below). The Crib Sheet was brought up to date with the current APA Publication Manual (6th ed.; 2001) by Doc Scribe in 2004. The sections on compound words, quotations, terminology, page format, statistics, text citations, and references have been added, revised, or expanded by Doc Scribe.

From the original APA Crib Sheet:

This page is a summary of rules for using APA style. The version you are reading was revised 10/10/96, edited and revised again on October 5, 2000 with Bill Scott of the College of Wooster, and updated in February 2004 by Doc Scribe. I have made every effort to keep this document accurate, but readers have occasionally pointed out errors and inconsistencies which required correction. I am grateful to them and invite additional feedback. This document may be reproduced freely if this paragraph is included. -- Russ Dowey, rdowey@georgiasouthern.edu[1]

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