The telecommunications minor will instill knowledge of:

- Telecommunication terminologies, standards, policies and procedures.
- Basics of data transmission, digital signal processes and signaling hierarchies.
- Architectures, communications protocols, and components of LANs, WANs and internetworks.
- The TCP/IP and ATM protocol suites.
- Switching, routing and traffic management in internetworked environments.
- Voice, video and data transmission over IP and ATM.
- Application development for the Internet.
- Distributed object systems programming and management.

The requirements for the minor are 18 credits shown below. Students are encouraged to check prerequisites. At most four courses can be used to satisfy both the telecommunications minor and a student’s major requirements.

### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTH 378. The Use and Effects of Drugs</td>
<td>3</td>
</tr>
<tr>
<td>HTH 407. Health Education Facilitation/Synthesis</td>
<td>2</td>
</tr>
<tr>
<td>HTH 451. Strategies for Health Change</td>
<td>3</td>
</tr>
<tr>
<td>HTH 458. Health Program Planning and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>HTH 488. Substance Abuse Prevention Basics</td>
<td>1</td>
</tr>
<tr>
<td>SOWK 317. Skills for Generalist Social Work</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose one of the following:

- PSYC 285. Drugs and Behavior
- PSYC 308. Health Psychology

Choose one of the following:

- SOCI 327. Juvenile Delinquency
- SOWK 340. Violence in Families
- SOWK 387. Working with Teenagers

Choose one of the following:

- HTH 357. Coping with Stress
- HTH 278. Alcohol Use and Abuse
- HTH 389. Health Education Practicum

**Total:** 18-19

### Urban and Regional Studies

#### Dr. Henry Way, Coordinator

Phone: (540) 568-2740  
E-mail: wayha@jmu.edu  
Web site: [http://www.jmu.edu/cisat/minors/urs.html](http://www.jmu.edu/cisat/minors/urs.html)

The minor in urban and regional studies prepares students for careers or graduate training in government. While satisfying the B.A. or B.S. requirements of their chosen major, students may complement that major with a 24 credit hour minor in urban and regional studies drawn from the following courses.

### Required Courses

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<tr>
<td>ECON 475. Regional Economics</td>
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</tr>
<tr>
<td>GEOG 376. Urban Geography</td>
<td>3</td>
</tr>
<tr>
<td>POSC 360. Urban Politics</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 265. Sociology of the Community</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose from the following:

- ECON 326. Public Finance
- ECON 340. Economics of Natural Resources
- FIN 210. Principles of Real Estate
- GEOG 315. Field Studies
- GEOG/GEOL 310A-D. Environmental Impact (2-3 credits)
- GEOL 340. Soil and Land Use
- POSC 302. State and Local Government
- POSC 495. Internship in Political Science (4 credits)
- SOCI 352. Birth, Death, Sex: Exploring Demography
- SOCI 361. Bureaucracy and Society

**Total:** 24

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1. Must be in a discipline other than the student's major.

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### Substance Abuse Intervention

#### Katherine Ott Walter, Adviser

Phone: 568-8972  
E-mail: ottwalmk@jmu.edu

This 22-credit hour interdisciplinary substance abuse intervention minor prepares the student to understand the impacting forces on the abusing individual and help the individual seek aid as appropriate. The SAI minor also prepares the student to assist communities in designing science-based prevention programs. Course work in the SAI minor can lead to certification as a Certified Prevention Professional, Alcohol, Tobacco and Other Drug (CPP-ATOD).

There is a moratorium on the SAI minor for the 2009-10 academic year.

### Required Courses

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- SOWK 387. Working with Teenagers

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- HTH 357. Coping with Stress
- HTH 278. Alcohol Use and Abuse
- HTH 389. Health Education Practicum

**Total:** 18-19

1. Must be in a discipline other than the student's major.

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### Telecommunications

#### Dr. Malcolm Lane, Adviser

Phone: (540) 568-2772  
E-mail: lanemg@jmu.edu  
Web site: [http://www.jmu.edu/cisat/minors/telecomm.html](http://www.jmu.edu/cisat/minors/telecomm.html)

The interdisciplinary minor in telecommunications is designed to augment the student’s major program with a package of courses that will prepare the graduate to obtain a position as a telecommunication/network professional and fill a societal need in one of the fastest growing areas of technology.

The program is developed as a minor principally for three major programs: computer science; integrated science and technology; and computer information systems. However, the program is open to any undergraduate with an interest in telecommunications and some computer background.

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http://www.jmu.edu/catalog/09