TELECOMMUNICATIONS AND MEDIA INDUSTRIES, B.A.

Begin Campus: Any Penn State Campus
End Campus: University Park

Program Description
The Telecommunications and Media Industries program seeks to prepare informed, responsible professionals for leadership roles in the electronic communication and information industries. The program stresses the social, cultural and economic impact of electronic media, including radio, television, videogames, telephones and the Internet.

Students can choose an emphasis in programming and production, management and entrepreneurship, law and policy.

Graduates go on to careers at local radio and television stations; broadcast, cable and satellite networks; Internet content and service providers; wired and wireless telephone companies; and other related media and entertainment industries. The major emphasizes the business and legal parameters of telecommunications, making it an excellent preparation for law school or graduate school and careers in government policy and the entertainment field.

What is Telecommunications and Media Industries?
Telecommunications and Media Industries is the array of electronic media industries that make up the global communications ecosystem. This comprises radio, television, telephones and the internet. Telecommunications includes traditional broadcast, cable, satellite and telephone companies, such as radio and TV stations and networks and music and film companies, as well as internet businesses involved in audio and video production, video games, social media, the Internet of Things, and more. This includes internet service providers, cloud computing, mobile telephones, and more. Students learn current industry practices and essential technological, economic, and legal concepts to develop the skills necessary to become successful leaders in all forms of electronic media and related industries throughout the world.

You Might Like This Program If...
- You are creative and like to produce audio or video content.
- You’re entrepreneurial and imaginative and want to develop new products.
- You’re analytical and imaginative and want to discover new insights into how people use media technologies.
- You’re outgoing and like to travel and want to help businesses grow.
- You like sports or entertainment, or have strong technical or policy interests and are interested in shaping the future of the Internet.

MORE INFORMATION ABOUT TELECOMMUNICATIONS AND MEDIA INDUSTRIES (http://bellisario.psu.edu/departments/department-of-telecommunications/)

Entrance to Major
In order to be eligible for entrance to this major, a student must:

1. attain at least a C (2.00) cumulative grade-point average for all courses taken at the University; and
2. have third-semester classification (http://www.registrar.psu.edu/enrollment/semester-classification.cfm).

READ SENATE POLICY 37-30: ENTRANCE TO AND CHANGES IN MAJOR PROGRAMS OF STUDY (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/37-00-entrance-to-a-college-or-major/)

Degree Requirements
For the Bachelor of Arts degree in Telecommunications and Media Industries, a minimum of 120 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>19-20</td>
</tr>
<tr>
<td>Bachelor of Arts Degree Requirements</td>
<td>24</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>34-35</td>
</tr>
</tbody>
</table>

3-4 of the 45 credits for General Education are included in the Requirements for the Major. This includes 0-3 credits of GS courses or 0-4 credits of GQ courses.

3 of the 24 credits for Bachelor of Arts Degree Requirements are included in the Requirements for the Major, General Education, or Electives and 0-12 credits are included in Electives if foreign language proficiency is demonstrated by examination.

Students must select at least 72 credits in courses outside the Bellisario College of Communications, including at least 65 in the liberal arts and sciences.

General Education
Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required.)
- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Knowledge Domains
- Arts (GA): 6 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 6 credits
- Social and Behavioral Sciences (GS): 6 credits
- Natural Sciences (GN): 9 credits
Integrative Studies (may also complete a Knowledge Domain requirement)

- Inter-Domain or Approved Linked Courses: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Engagement, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

B.A. Degree Requirements

Foreign Language (0-12 credits): Student must attain 12th credit level of proficiency in one foreign language. See the Placement Policy for Penn State Foreign Language Courses (https://bulletins.psu.edu/undergraduate/general-information/academic-information/advising-planning-degree-program/course-placements/placement-policy-world-language-courses/).

B.A. Fields (9 credits): Humanities, Social and Behavioral Sciences, Arts, Foreign Languages, Natural Sciences, Quantification (may not be taken in the area of the student’s primary major; foreign language credits in this category must be in a second foreign language or beyond the 12th credit level of proficiency in the first language)

Other Cultures (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the General Education US/IL requirement.

Requirements for the Major

A grade of C or better is required for all courses in the major. To graduate, a student enrolled in the major must earn at least a C grade in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 160</td>
<td>Basic News Writing Skills</td>
<td>1</td>
</tr>
<tr>
<td>COMM 180</td>
<td>Survey of Electronic Media and Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>COMM 280</td>
<td>Introduction to Telecommunications Technologies</td>
<td>3</td>
</tr>
<tr>
<td>COMM 380</td>
<td>Telecommunications Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses

Select 3-4 credits from the following: 3-4

- ECON 102 Introductory Microeconomic Analysis and Policy
- ECON 14 Principles of Economics
- SCM 200 Introduction to Statistics for Business
- STAT 200 Elementary Statistics

Select 12 credits from the following: 12

- COMM 190/191A Internship (3 credits)
- GAME 140 Gaming and Interactive Media
- COMM 282 Television Field Production
- COMM 283 Television Studio Production
- COMM 310 Digital Media Metrics
- COMM 374 Audio Production
- COMM 383 Advanced Video Production
- COMM 383A Webcast Production
- COMM 384 Telecommunications Promotion and Sales
- COMM 385 Media Programming Strategies
- COMM 386 Telecommunications History
- COMM 403H Law of Mass Communications
- COMM 410 International Mass Communications
- COMM 419 World Media Systems
- COMM 419H World Media Systems
- COMM 479 Telecommunication Economics
- COMM 483 Wireless Communications Industry
- COMM 484 Emerging Telecommunications Technologies
- COMM 484A Wireless Devices and Global Markets
- COMM 485
- COMM 490 Issues in Electronic Commerce
- COMM 491 International Telecommunications
- COMM 493 Entrepreneurship in the Information Age
- COMM 495 Internship (3 credits)

Select 3 credits in law of the following: 1
values and competencies and be able to:

Irrespective of their individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core competencies and be able to:

1. understand concepts and apply theories in the use and presentation of images and information;
2. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
3. think critically, creatively and independently;
4. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
5. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
6. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
7. apply basic numerical and statistical concepts;
8. apply basic tools and technologies appropriate for the communications professions in which they work.

Professional Values and Competencies

Individual professions in journalism and mass communication may require certain specialized values and competencies. Irrespective of their particular specialization, all graduates should be aware of certain core values and competencies and be able to:

1. understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and assemble and to petition for redress of grievances;
2. demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
3. demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
4. demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
5. understand concepts and apply theories in the use and presentation of images and information;
6. demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness and diversity;
7. think critically, creatively and independently;
8. conduct research and evaluate information by methods appropriate to the communications professions in which they work;
9. write correctly and clearly in forms and styles appropriate for the communications professions, audiences and purposes they serve;
10. critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style and grammatical correctness;
11. apply basic numerical and statistical concepts;
12. apply basic tools and technologies appropriate for the communications professions in which they work.

Learning Outcomes

Students must take at least 9 credits of 400-level courses from the following:

Select 3 credits in capstone courses of the following: 1

COMM 486W Telecommunications Ethics
COMM 487W Advanced Telecommunications Management and Leadership
COMM 489W Advanced Telecommunications Topics

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 3 credits in social aspects of communication from the following:

COMM 433W Media Systems
COMM 437W Media Law
COMM 438W Media Law
COMM 439W Media Law
COMM 440W Media Law
COMM 441W Media Law
COMM 442W Media Law
COMM 443W Media Law
COMM 444W Media Law
COMM 445W Media Law
COMM 446W Media Law
COMM 447W Media Law
COMM 448W Media Law
COMM 449W Media Law
COMM 450W Media Law
COMM 451W Media Law
COMM 452W Media Law
COMM 453W Media Law
COMM 454W Media Law
COMM 455W Media Law
COMM 456W Media Law
COMM 457W Media Law
COMM 458W Media Law
COMM 459W Media Law
COMM 460W Media Law
COMM 461W Media Law
COMM 462W Media Law
COMM 463W Media Law
COMM 464W Media Law
COMM 465W Media Law
COMM 466W Media Law
COMM 467W Media Law
COMM 468W Media Law
COMM 469W Media Law
COMM 470W Media Law
COMM 471W Media Law
COMM 472W Media Law
COMM 473W Media Law
COMM 474W Media Law
COMM 475W Media Law
COMM 476W Media Law
COMM 477W Media Law
COMM 478W Media Law
COMM 479W Media Law
COMM 480W Media Law
COMM 481W Media Law
COMM 482W Media Law
COMM 483W Media Law
COMM 484W Media Law
COMM 485W Media Law
COMM 486W Media Law
COMM 487W Media Law
COMM 488W Media Law
COMM 489W Media Law
COMM 490W Media Law
COMM 491W Media Law
COMM 492W Media Law
COMM 493W Media Law
COMM 494W Media Law
COMM 495W Media Law
COMM 496W Media Law
COMM 497W Media Law
COMM 498W Media Law
COMM 499W Media Law

Students must meet with a faculty adviser to approve their course selections.

Students must take at least 9 credits of 400-level courses from the additional or supporting course lists.

Academic Advising

The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

University Park
Brenda Johnson
Administrative Support Assistant
204 Carnegie Building
University Park, PA 16802
814-865-1503
bmj11@psu.edu

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2021-22 academic year. To access previous years’ suggested academic plans, please visit the archive (https://bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition (Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).

Telecommunications and Media Industries, B.A. at University Park Campus and Commonwealth Campuses

The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.
### Telecommunications and Media Industries, B.A.

#### Bachelor of Arts Requirements:

- Bachelor of Arts students must take 9 credits in Bachelor of Arts (B.A.) Fields (Humanities; Social and Behavioral Sciences; Arts; World Languages [2nd language or beyond the 12th credit level of proficiency in the 1st]; Natural Sciences; Quantification). The B.A. Fields courses may not be taken in the area of the student’s primary major. See your adviser and the Degree Requirements section (https://bulletins.psu.edu/undergraduate/general-information/academic-information/) of this Bulletin.

- Bachelor of Arts students must take 3 credits in Other Cultures. See your adviser and the full list of courses approved as Other Cultures courses (https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-other-cultures/).

#### University Requirements and General Education Notes:

- US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

- W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

- GWS, GQ, GH, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

#### Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

- All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

#### University Requirements (United States and International Cultures):

- Bachelor of Arts students must take 3 credits in Other Cultures. See your adviser and the full list of courses approved as Other Cultures courses (https://bulletins.psu.edu/undergraduate/general-education/course-lists/ba-other-cultures/).

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>COMM 160†</td>
<td>3</td>
<td>COMM 180††</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENGL 15 or 30H (GWS)‡</td>
<td>3</td>
<td>General Education Course (GN)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GN)</td>
<td>3</td>
<td>General Education Course (GH)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GS) (Inter-Domain)</td>
<td>3</td>
<td>General Education Course (GQ)‡</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Foreign Language</td>
<td>4</td>
<td>Foreign Language</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PSU 9</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>15</td>
<td><strong>Total</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td>ECON 102 or STAT 200††</td>
<td>3-4</td>
<td>COMM 280†‡</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GA)</td>
<td>3</td>
<td>BA Knowledge Domain</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GN)</td>
<td>3</td>
<td>BA Knowledge Domain (US Cultures)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GH) (Inter-Domain)</td>
<td>3</td>
<td>BA Other Cultures</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Foreign Language</td>
<td>4</td>
<td>General Education Course (GQ)‡</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>16-17</td>
<td><strong>Total</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td>COMM 380†</td>
<td>3</td>
<td>COMM 190, 242, 282, 283, 310, 374, 383, 383A, 384, 385, 403, 419, 479, 483, 484, 484A, 490, 491, 493, or 495†</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COMM 110, 118, 205, 304, 403, 405, 409, 410, 411, 412, 413W, 417, 418, 419, or 496‡</td>
<td>3</td>
<td>COMM 190, 242, 282, 283, 310, 374, 383, 383A, 384, 385, 403, 419, 479, 483, 484, 484A, 490, 491, 493, or 495†</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CAS 100A, 100B, or 100C (GWS) †</td>
<td>3</td>
<td>ENGL 202A, 202B, 202C, or 202D (GWS) †</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GA)</td>
<td>3</td>
<td>Non-COMM Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>BA Knowledge Domain (IL Cultures)</td>
<td>3</td>
<td>Non-COMM Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>15</td>
<td><strong>Total</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td>COMM 403, 404, or 492†</td>
<td>3</td>
<td>COMM 486W, 487W, or 489W</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COMM 190, 242, 282, 283, 310, 374, 383, 383A, 384, 385, 403, 419, 479, 483, 484, 484A, 490, 491, 493, or 495§</td>
<td>3</td>
<td>COMM 190, 242, 282, 283, 310, 374, 383, 383A, 384, 385, 403, 419, 479, 483, 484, 484A, 490, 491, 493, or 495§</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elective</th>
<th>3 Elective</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Course</td>
<td>1.5 General Education (GHW)</td>
<td>1.5</td>
</tr>
<tr>
<td>Elective (if ECON 102 taken instead of STAT 200)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Credits</th>
<th>120-121</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.5</td>
<td>13.5</td>
</tr>
</tbody>
</table>

* Course requires a grade of C or better for the major
† Course requires a grade of C or better for General Education
‡ Course is an Entrance to Major requirement
§ Course satisfies General Education and degree requirement

- Students studying at any of the commonwealth campuses that do not offer COMM 180 will take that course in the fifth semester upon arrival to University Park.
- Students studying at any of the commonwealth campuses that do not offer COMM 280 will take that course fifth semester upon arrival to University Park.
Career Paths
A Telecommunications and Media Industries degree prepares students for career success with a valuable mix of hands-on technical experience and leadership development skills. Students can pursue careers in television, radio and other forms of content production, audience research and programming, marketing and sales, product and app development, or legal and policy issues. Graduates go on to work at major television networks, production companies, sports leagues, social media companies, internet and telephone companies, industry associations, government agencies and public advocacy groups both in the United States and in many other countries around the world.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE TELECOMMUNICATIONS AND MEDIA INDUSTRIES PROGRAM (http://bellisario.psu.edu/departments/department-of-telecommunications/)

Opportunities for Graduate Studies
The telecommunications and media industries program is excellent preparation for law school or graduate school. The curriculum includes a heavy emphasis on legal and policy issues including free speech, privacy, intellectual property, technology law and entertainment law, providing a solid foundation for law school. The program also covers important economic and business concepts related to the media and technology industries, including issues related to diversity, ethics and globalization. This provides a solid grounding in research and analysis for graduate school.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (http://bellisario.psu.edu/departments/department-of-telecommunications/)

Accreditation
All majors in the Bellisario College of Communications are accredited by the Accrediting Council on Education in Journalism and Mass Communications.

The Donald P. Bellisario College of Communications is evaluated regularly by the Accrediting Council on Education in Journalism and Mass Communications, and the Bellisario College has consistently met the high standards of the organization that is dedicated to excellence in professional education in journalism and mass communications. For undergraduate students, accreditation most practically means that upper-level professional classes in each major will be conducted in rooms with 20 or fewer students.

MORE INFORMATION ABOUT THE ACCREDITING COUNCIL ON EDUCATION IN JOURNALISM AND MASS COMMUNICATIONS (http://www.aejmc.org)

Contact
University Park
DEPARTMENT OF TELECOMMUNICATIONS AND MEDIA INDUSTRIES
11 Carnegie Building
University Park, PA 16802
814-863-6416
kpj1@psu.edu

https://www.bellisario.psu.edu/departments/telecommunications (https://www.bellisario.psu.edu/departments/telecommunications/)