



Eastern Kentucky University is a nationally recognized public university located in Richmond, Kentucky. EKU began offering online degrees in 2006 and continues to service students with both on-campus and online offerings.

## BENEFITS

- Free books for all students with [EKU BookSmart](#)
- Undergraduate computer science degree is not required
- Highly tailor and personalize your degree through concentration options
- Accelerated 8-week terms
- [Reduced tuition for active duty military members and their spouses](#)
- Free online tutoring and career services assistance
- Ranked by *U.S. News & World Report* among the best universities offering online degrees

## 100% Online Master of Science in Computer Science

Eastern Kentucky University's master in computer science program emphasizes advanced computer science and software engineering concepts while covering a range of technical subject areas. Graduates are prepared with the skills needed to solve complex technological problems, serve in management roles and increase earning potential. Students without a computer science bachelor's who are looking for a career change can complete CSC 801, Object-Oriented Programming, to gain the foundation needed to be successful in the program.



**100%**  
ONLINE



**\$649** PER  
CREDIT HOUR

## COMPUTER SCIENCE DEGREES & CERTIFICATES

- Graduate Certificate in Artificial Intelligence in Data Science
- Graduate Certificate in Cybersecurity and Digital Forensics
- Certificate in Game Design



[EKU Online Computer Science](#)

521 Lancaster Ave.  
Richmond, KY 40475

859-622-4455

[onlinedegrees@eku.edu](mailto:onlinedegrees@eku.edu)

## CORE COURSES...12 HOURS

### Object-Oriented Programming - CSC 801\*

The problem solving and algorithm design through object-oriented programming. Topics include core concepts in a high-level programming language (data types, control structures, arrays, and exception handling) as well as object-oriented techniques (classes, objects, methods, inheritance and polymorphism.)

### Programming and Data Structure - CSC 730

The application and implementation of data structures including arrays, linked lists, stacks, queues, heaps, trees and graphs and their related algorithms, using an object-oriented programming language.

### Computer Admin and Security - CSC 815

Operating system concepts, installation and setup system administration, managing system services, program security, viruses and worms, encryption, information database security, security policies, legal and ethical issues.

### Databases and Algorithms - CSC 831

Models and principles of information systems and database languages. The logical and physical design as well as the implementation and use of database systems.

### Software Engineering - CSC 834

Planning, organizing, monitoring, and controlling the implementation of a software project.

\*Students who have completed equivalent programming course(s) do not need to take this course. These course equivalencies will be evaluated by the department when the students are admitted into the program.

## ELECTIVES...6 HOURS

### CHOOSE TWO OF THE FOLLOWING:

#### Network Application and Security - CSC 825

Local Area Networks, TCP/IP, Internet Protocols, Client/Server applications. Dynamic web pages, Internet security, firewalls, virtual private networks, network attacks, Web and E-commerce security, wireless networking and security.

#### Project Management - CSC 835

A survey of current issues in Software Engineering, software testing, metrics, quality assurance, software reuse, and re-engineering.

#### Co-op or Applied Learning: Computer Science - CSC 839

May be retaken with approval to a maximum of three credit hours. Employment with faculty and field supervision in an area related to the student's academic interests. A Minimum of eighty hours of employment is required for each academic credit.

#### Independent Study - CSC 890

Independent study on a problem chosen by the student and instructor. Student must have the independent study form and course syllabus approved by faculty supervisor and department chair prior to enrollment. May be retaken to a maximum of nine hours, provided that the topics are different.

EKU GRADUATE CATALOG



**CHOOSE ONE OF THE FOLLOWING CONCENTRATIONS:**  
**ARTIFICIAL INTELLIGENCE IN DATA SCIENCE...12 HOURS**

**Artificial Intelligence - CSC 746**

The use of programming languages to model concepts selected from artificial intelligence. The application of heuristics to problem solving. Perception and pattern recognition.

**Machine Learning - CSC 781**

Introduction to Machine Learning and its core models and algorithms. Hands-on R programming experiences of using machine learning/deep learning algorithms to analyze real-world data sets.

**Big Data - CSC 782**

Advanced cutting edge and state-of-the-arts knowledge and implementation in big data. Modern deep learning tools for analyzing real-world data sets.

**Data Visualization - CSC 783**

Principles and techniques for data visualization, including visual representation methods and techniques for increasing the understanding of complex data and models. Hands-on visual programming experiences in data collection and demonstration.

**CYBER SECURITY AND DIGITAL FORENSICS...12 HOURS**

**Incident Response I - CSC 736**

This course discusses the details of various aspects of cybersecurity incident response. Topics include pre-incident preparation, incident detection and characterization, data collection and analysis, and remediation.

**Incident Response II - CSC 737**

This course discusses cybersecurity incident response in the context of various computing platforms. Topics include dead-box analysis, memory analysis, log analysis, and malware analysis in Windows, Linux and MacOS Systems.

**Database Admin and Security - CSC 744**

This course covers database management system concepts, database system architecture, installation and setup, data management, performance monitoring and tuning, backup and recovery, database security models and management, database auditing.

**Principles of Cybersecurity - INF 718**

This course discusses cybersecurity principles. Topics include security governance, risk assessment, security, people, information, and physical asset management; system development, access, and management; threat and incident management; business continuity; security monitoring and improvement.

**GAME DESIGN...12 HOURS**

**Principals of Game Design and Game Theory - INF 711**

Fundamentals of designing both digital and non-digital games. In depth study of the nature of "Fun," design philosophies, choice, motivation, flow theory, types of decisions, and reward in gameplay systems. Additional topics related to gamification, monetization, and serious games also covered.

**Game Production and Publication - INF 712**

Review of historical and current aspects of the games industry from AAA to indie. Industry operations, Employment, Founding your own studio, Funding, Freelancing, the Role of Influencers (Twitch, Youtube, social media), Platforms, IP protection.

**Online Game and App Design - INF 713**

Introduction to the principles of design for online games and applications. Topics include game balance, competition, cooperation, detecting exploits and cheating, security, privacy, social structures, administration, community management, online harassment, and client-server communication.

**Special Topics in Gaming - INF 715**

Topics vary with offering. May be retaken to a maximum of six hours with advisor approval, provided the topics are different.



What can I do with this degree?

## CAREER OUTLOOK

Employment of computer and information technology occupations is projected to grow 12 percent by 2028, much faster than the average for all occupations. These occupations are projected to add about 546,200 new jobs. Demand for these workers will stem from greater emphasis on cloud computing, the collection and storage of big data, and information security.

### Careers for Computer Science Graduates

- Network Administrator
- Information Security Analyst
- Software Engineer
- Software Developer
- Systems, Database, or Network Administrator
- Systems Analyst
- Information System (IS), Information Technology (IT), or Network Architect
- Computer Science or Computer Information System Researcher
- Cyber Law, Regulations, Compliance Analyst
- Community Relations Coordinator

[SALARY ESTIMATES](#)

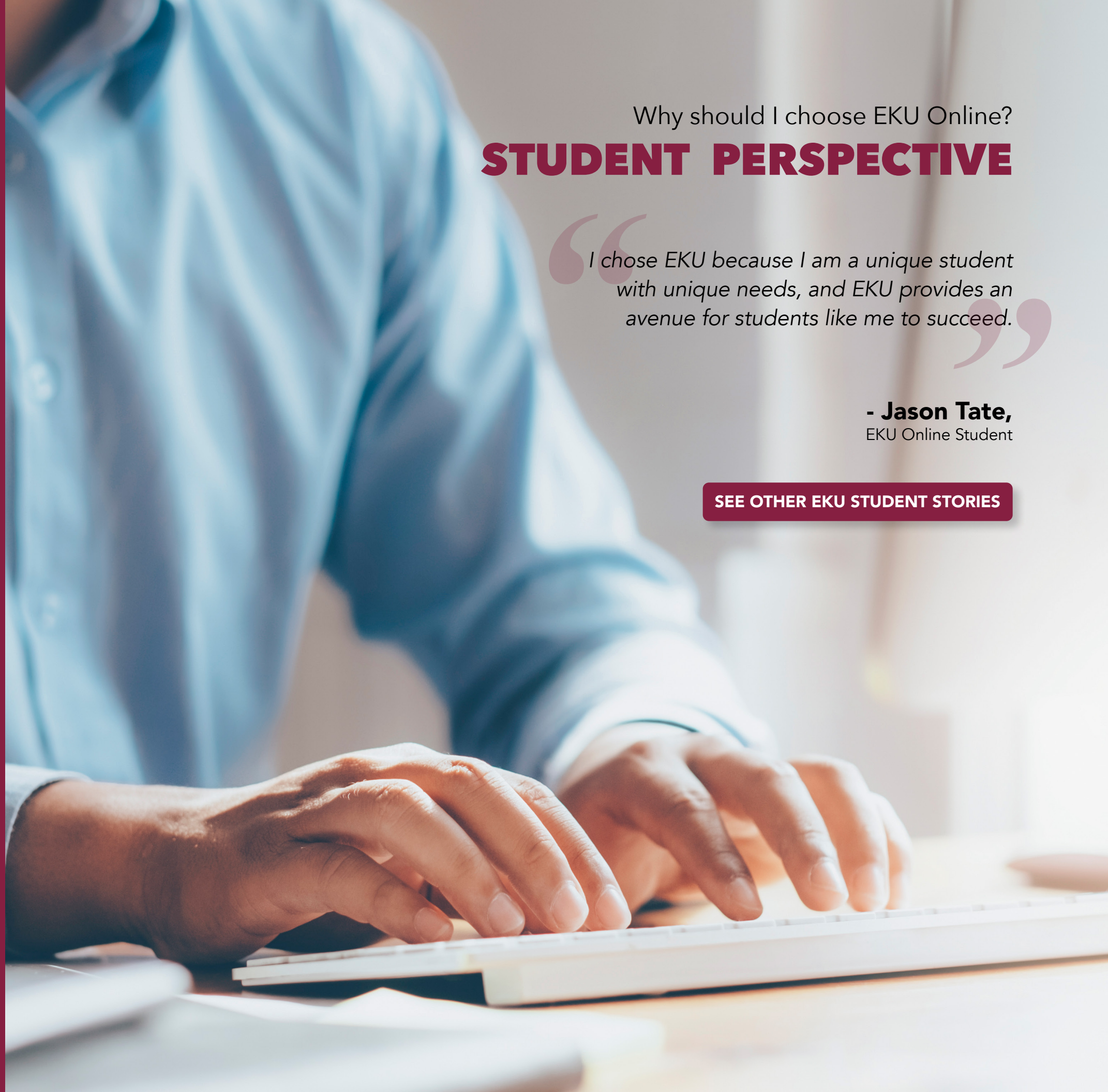
Why should I choose ECU Online?

## STUDENT PERSPECTIVE

*I chose ECU because I am a unique student with unique needs, and ECU provides an avenue for students like me to succeed.*

**- Jason Tate,**  
ECU Online Student

[SEE OTHER ECU STUDENT STORIES](#)





Can I afford to go back to school?

# FINANCIAL AID & SCHOLARSHIPS

Paying for school doesn't have to be overwhelming. Almost everyone, regardless of income, can qualify for some form of financial aid. We're here to help you learn about available options and what may be right for your unique situation.

- Grants
- Federal Loans
- Private Loans
- Military Benefits
- Departmental Scholarships
- Outside Scholarships
- Foundation Scholarships
- Employer Tuition Reimbursement

**MORE FINANCIAL AID INFO**

Questions about financial aid?

**Big E Central**

[BigECentral@eku.edu](mailto:BigECentral@eku.edu)

(859) 622-2361

**EKU Online** offers a range of scholarships designed to address the financial needs of our students, lower the overall cost of attendance and reward a student's scholastic achievements.

## EKU UNIVERSITY SCHOLARSHIPS

### **Start Strong Scholarship Fund (undergraduate programs only)**

The Start Strong Scholarship provides up to \$2,000 per year of need-based scholarship funds for newly admitted undergraduate students. Candidates must have a completed FAFSA application, but are not required to be eligible for FAFSA awarded funding.

### **Stay Strong Scholarship Fund (undergraduate programs only)**

The Stay Strong Scholarship provides up to \$1,000 per year of need-based scholarship funds for qualified undergraduate students who have completed two semesters with EKU Online and have earned a 3.5 GPA or higher their previous semester. Candidates must have a completed FAFSA application, but are not required to be eligible for FAFSA awarded funding.

### **Omega Nu Lambda Honor Society Scholarship Fund**

In recognition of your accomplishments as an online student, Omega Nu Lambda Honor Society provides members with an opportunity to apply for a scholarship in both fall and spring. Fall scholarships are announced in November and spring are announced in April.

### **EKU Foundation Scholarship**

The Eastern Kentucky University Foundation, through the generosity of its donors, offers a variety of scholarship opportunities to deserving students. EKU Foundation scholarships are awarded through the University Scholarship Office and at college and department levels. New and renewable awards of [EKU Foundation scholarships](#) are subject to available funds each year.

**MORE SCHOLARSHIP INFO**



When will I start classes?

## APPLICATION DEADLINES

| TERM     | APPLY BY    | BEGIN CLASSES |
|----------|-------------|---------------|
| Fall A   | July 5      | August        |
| Fall B   | August 31   | October       |
| Spring A | November 30 | January       |
| Spring B | January 31  | March         |
| Summer A | April 5     | May           |
| Summer B | May 31      | June          |

What do I need to apply?

## ADMISSION REQUIREMENTS

- A baccalaureate degree from an accredited institution with a minimum grade point average (GPA) of 2.75 overall, or 3.0 on the last 60 semester hours of the baccalaureate program.
- One of the following:**
  - Satisfactory scores on GRE or GMAT\*. The minimum satisfactory GRE scores are 149 points of Quantitative. The minimum satisfactory GMAT scores are 37 points of Quantitative.
  - A bachelor's, master's or Ph.D. degree in science, technology, engineering or math with a GPA of at least 3.0.
  - At least a "B" in an undergraduate precalculus course or equivalent mathematics background.
- At least a "C" in CSC 190 and 191 or equivalent courses. (Requirement will be waived for students with a bachelor's degree in computer science from an accredited institution. Requirement may be waived for students with a related degree whose transcript demonstrates equivalent course competencies.)

*\*Requirement can be waived for students who complete one of CSC 730, 815, 831 and 834 with at least a "B".*

ADMISSION INFORMATION

How do I apply?

## APPLICATION PROCESS

Graduate Students:

**Step 1:** Complete the free ECU Graduate School's online application at:

[https://application.ecu.edu/portal/apply\\_ecu](https://application.ecu.edu/portal/apply_ecu)

START MY APPLICATION

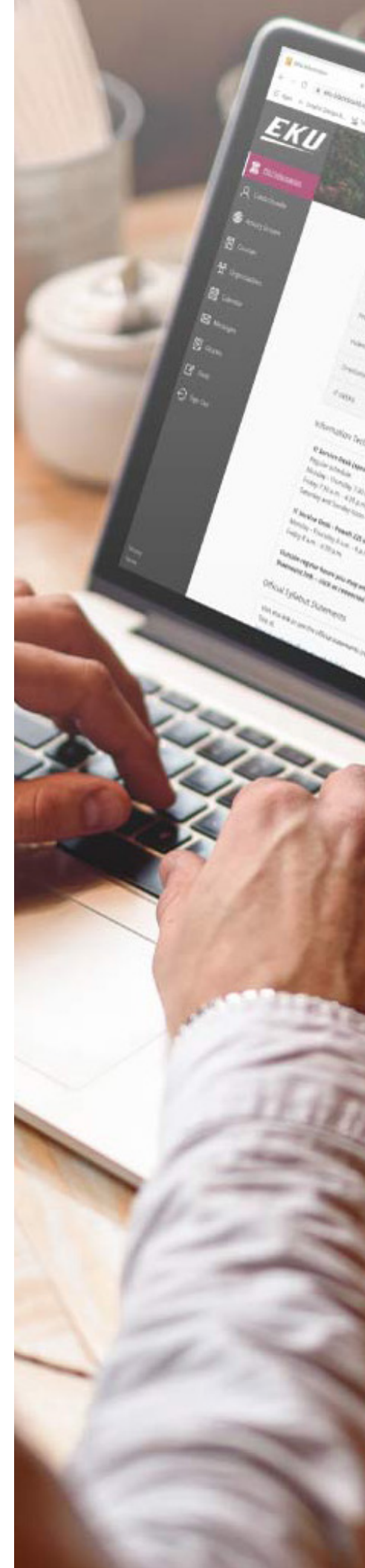
**Step 2:** Provide official entrance exam scores (GRE, MAT or GMAT), if applicable.

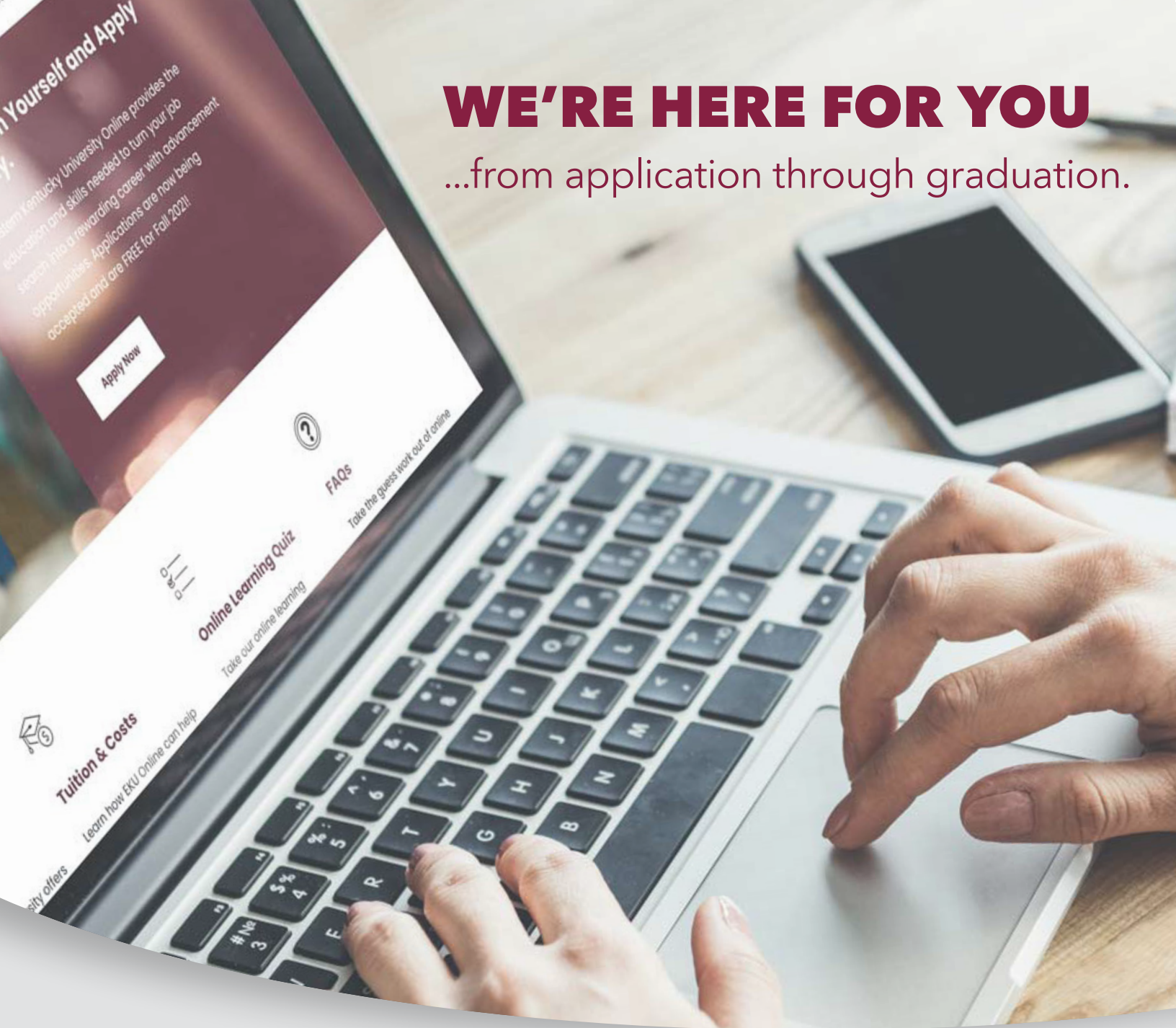
**Step 3:** Provide official undergraduate transcripts (if not an ECU graduate).

**Step 4:** Submit letters of recommendation, if required for the academic program.

What are you waiting for?

**GET STARTED TODAY!**





**WE'RE HERE FOR YOU**  
...from application through graduation.



**Amanda McIntosh**  
Enrollment Advisor

☎ 859-622-6458

✉ [Amanda.McIntosh@eku.edu](mailto:Amanda.McIntosh@eku.edu)

***EKU***  
**ONLINE**

**SCHEDULE A CALL**

Eastern Kentucky University is an Equal Opportunity employer and educational institution and does not discriminate on the basis of age (40 and over), race, color, religion, sex, sexual orientation, gender identity, gender expression, pregnancy, ethnicity, disability, national origin, veteran status, and/or genetic information in the admission to, or participation in, any educational program or activity (e.g., athletics, academics and housing) which it conducts, or in any employment policy or practice. Any complaint arising by reason of alleged discrimination should be directed to the Office of Institutional Equity, Eastern Kentucky University, Jones Bldg. Room 416, Richmond, Kentucky 40475 (859) 622-8020, or the Assistant Secretary for Civil Rights, U.S. Department of Education, Office for Civil Rights, Lyndon Baines Johnson Department of Education Building, 400 Maryland Avenue, SW, Washington, DC. 20202 1-800-421-3481(V), 1-800- 877-8339 (TTY).