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Students Analyze Data and Solve Problems in Business Analytics Degree

Students who like working with data—gathering it, analyzing it, finding patterns in it, and interpreting it—will want to explore Montgomery College's new business analytics degree.

The program provides students a solid foundation in general business courses, including economics and accounting, and builds essential skills in business analytics, statistics, scripting in programming language, data visualization, and applied decision-making. Students also receive hands-on experience in Excel, R, Tableau, and SQL in business analytics to summarize, visualize, and analyze data.

"Early on, students are introduced to real-world data and real-world cases," says Dr. Kathryn Klose, accounting coordinator and professor. "By the time they hit the capstone course, Business Analytics 250, they will have gathered their data and produced their cases—and will have the opportunity to engage with industry professionals." Klose says

Professor Rachel Saidi, who teaches math, statistics, and data science at the College, says, "We try to make classes welcoming. We introduce students to data sets that are interesting and relevant."

Professor Linda Fontaine, business analytics coordinator, says there is a difference in data analytics and business analytics. She uses a February 2024 Fortune magazine article by Preston Fore to illustrate: Data analytics focuses on identifying trends among data, visualizing those trends, and helping to translate the meaning behind them… the focus of business analytics is the leveraging of data to help businesses make decisions.

According to ZipRecruiter.com, Montgomery County ranks sixth in the nation for the need for business analytics professionals. The Bureau of Labor Statistics reports job growth in this industry will increase 25% in the next five years.

Montgomery College worked closely with business partners and the Universities at Shady Grove and the University of Maryland to create a seamless 2 + 2 +1 pathway to a master's degree in business analytics. "That master's degree would prepare them for an emerging role as a chief analytics officer," says Klose.

According to ZipRecruiter.com, Montgomery County, Maryland, ranks sixth in the nation for the need for business analytics professionals. According to the Bureau of Labor Statistics (BLS), job growth in this industry will increase 25% in the next five years.

Klose says students will be prepared to work in positions such as operations research and data analysts. According to the BLS, the median annual wage in these positions is $82,360 and $100,910 respectively.

"If you like to take on challenges, solve problems, work with data, and—equally as important—visualize and tell a story, you will find this field appealing," says Klose.

Interested students can visit the business analytics webpage at **montgomerycollege.edu/academics/programs/business-analytics/business-analytics-aa-degree.html** or contact Linda.Fontaine@montgomerycollege.edu.

Dual Enrollment Students
Take Advantage of Opportunities Outside the Classroom

With dozens of national and collegewide competitions, student internships and research, and more than 100 student clubs, Montgomery College offers many opportunities for students to excel outside the classroom. And dual enrollment students make the most of these chances. "These kids have already broken out of the mold. They've taken ownership of their own education. They value themselves because they're being treated as equals by college students who are a couple years older—and by their professors. They're really primed for this experiential learning experience," says Dr. David Kuijt, Rockville Campus computer science professor, who serves as faculty mentor of the NASA Minds competition.

In the Engineering Design Challenge, students used 3D printers in the Innovation Lab to make their own phone cases.

NASA MINDS

NASA MINDS is a multi-semester undergraduate-level activity for Minority Serving Institutions (MSIs) that supports NASA's Artemis mission. Kuijt mentored the 2023 "MC UV" team, which took home two awards from the competition last May: second place in the overall competition (complete design, build, and presentation) and third place for their technical paper. More than 30 teams from a variety of two- and four-year institutions participated in this competition. The MC team was one of five teams invited to the final level, presenting their project to a panel of NASA scientists and engineers. The team was composed entirely of dual enrollment students majoring in engineering. Team member Jia Xi Lin, a Northwest High School senior, says, "I really enjoyed being a part of NASA Minds and gained so much valuable experience, both technical and soft skills."

Grand Challenges Scholars Program

Montgomery College received the first community college invitation from the National Academy of Engineering to participate in the Grand Challenges Scholars Program (GCSP). The GCSP initiative creates an honors program that will develop engineering students who will solve the 21st century's largest problems: better medicines, solar power, reverse engineering the brain, clean water, fusion, and carbon sequestration. GCSP scholars will develop competencies in research, multidisciplinary, service learning, entrepreneurial, and multicultural approaches, and apply them to their chosen Grand Challenge Problem.

Engineering Design Challenge

The College's Engineering Design Challenge encourages engineering students to share unique and creative ways of using skills learned in class for designing a real-life object. In last year's challenge, students created and designed a smart-phone case. Using 3D printers in the Innovation Lab they printed the product for use on their own smart-phone. In addition, students had to provide a marketing plan for selling the product. "The imagination and ingenuity that came out of these students was astounding," says Dr. Helio Zwi, department chair of engineering, physical, and computer sciences at the Rockville Campus.

Early College Summer Honors Research

Early College students who have a 3.4 grade point average and an A or B in ENGL 101 or the equivalent can participate in a 10-week intensive summer research program at the
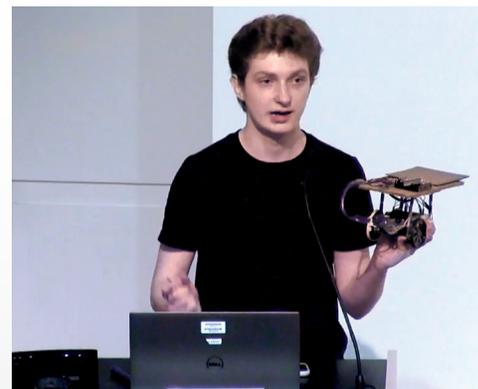
Victor Mathias (Northwest HS) shows his Early College Summer Honors Research project, an Arduino module, to fellow students at the colloquium.

Germantown Campus. During the experience, students work in groups with a faculty mentor to determine what to research—and then undertake it. At the end of the summer, student groups provide their findings through a poster or presentation to fellow students and faculty. MC students majoring in STEM curricula benefit from the experience of doing and presenting original research. Last year, 30 Early College students participated in the research program. This included Cameron Neyzari (Walt Whitman HS), whose research focused on a comparison of nervous system physiology to artificial neural networks.

NIST PREP Program

The Professional Research Experience Program (PREP) provides valuable laboratory experience and financial assistance to undergraduates, graduate students, postdocs, and faculty.

Research areas include, but may not be limited to, artificial intelligence, biochemistry, biological sciences, chemistry, computer science, engineering, electronics, information technology, materials science, mathematics, nanoscale science, neutron science, physical sciences, physics, social sciences, scientific/technical writing, science and technology policy, and statistics.

"It's a very selective process," says Alla Webb, department chair of the Physical Sciences, Engineering, Computer Science, Cybersecurity, and Networking Department. Forty to 50 applicants submit resumes every semester. They must possess a combination of skills, including specific programming languages, C++ or Python, communication skills, and GPA (3.2 or above.)

Early College student Patrick Syme (Sherwood HS), is currently interning at NIST, making and designing websites. "I find it interesting," says the University of Maryland-bound senior. "I'm using mostly HTML, but I've also learned reStructuredText. These are all applications of what I've learned."

Cybersecurity Activities

MC's Cybersecurity Lab provides significant virtual computing and networking capabilities on the Montgomery College Germantown Campus. Montgomery College is a designated

National Center of Academic Excellence in Cyber Defense by the National Security Agency (NSA) and the U.S. Department of Homeland Security.

The lab is not only used for academic competitions and research activities, but also provides opportunities to IT industry professionals for teaching, learning, and professional growth. In addition to supporting traditional students, Montgomery College is now uniquely positioned to train cybersecurity professionals and meet workforce development challenges with a learn-by-doing approach to education. The Cyber Lab can host 100-plus virtual servers, 250-plus virtual desktops, isolated networks, and wireless and forensic technologies.

The 2023 NASA MINDS team, took home two awards: second place in the overall competition and third-place for their technical paper.

"Our EC students majoring in cybersecurity do exceptionally well in cyber competitions and Capture the Flag events," says Dr. Webb.

Clubs

All campuses have a number of clubs that are open to students in dual enrollment programs. These include the 3-D Modeling and Manufacturing Club, ACM Student Chapter, AeroSpace Club, Astronomy Club, Engineers Without Borders, Geology Club, IEEE MC Student Branch, MC Engineering Club, Quantum Club, Raptors Who Code, Robotics Club, Women in Science and Technology, and more.

Students interested more information on competitions, internships, and clubs should visit **montgomerycollege.edu/academics/stem/science-engineering-technology/index.html**

DID YOU KNOW ?

Early College Student Serves as Councilmember for a Day

Folashade Epebinu, a senior at Seneca Valley HS, won this year's Councilmember for a Day competition, hosted by Montgomery County Councilmember Will Jawando.

Epebinu won the chance to join the Montgomery County Council for a session with her video submission about the need for affordable childcare. She joined the council on November 28, 2023. The council presented her a proclamation and held a luncheon in her honor. She ceremonially voted along with the 11-member council.

Epebinu is an Early College student in general engineering. She also serves as secretary for the Maryland Youth Advisory Council.

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A service of the Montgomery College–
Montgomery County Public Schools Partnership.
Rockville, MD 20850

MONTGOMERY COLLEGE

Have a question? Please contact:
dualenrollment@montgomerycollege.edu

Dr. Genevieve Floyd
Genevieve_L_Floyd@mcpsmd.org

Congratulations to all 2024 MCPS graduates!

Montgomery College offers an affordable education, with outstanding professors, convenient locations and online programs, and credits that transfer to other colleges and universities. And we've simplified the admissions and registration process. You may qualify for a $500 Raptor Ready scholarship. Visit montgomerycollege. edu for more information.

IMPORTANT dates and deadlines 2024

June
- Get a summer job. Your high school Career Center may have job listings that interest you.
- Sign up for the ACT test by June 7; test is administered on July 13.

July
- July 24: Attend a Montgomery College Rockville Campus Open House from 1 to 5 p.m. Visit montgomerycollege.edu/admissions-registration/future-students.html
- Check out the websites of colleges that interest you—read the admissions section, take a virtual tour, and look at the courses offered.
- Work on special submissions for college applications: portfolios, audition tapes, writing samples.
- commonapp.org provides the Common Application, which many colleges use for admission; they may also require forms of their own.
- NACACnet.org lists regional college fairs.

August
- Sign up for the SAT test by Aug. 9; test is administered on Aug. 24
- Aug. 13: Attend a Montgomery College Germantown Campus Open House from 9:30 a.m. to 2:30 p.m. Visit montgomerycollege.edu/admissions-registration/future-students.html
- Type a personal profile so your counselor can have a guide when writing your recommendations.
- List your goals, academic interests, achievements, volunteer and extracurricular activities, work experience, and problems you have overcome.
- Update your resume to include summer employment and volunteer activities.
- Check out studentaid.ed.gov for financial aid information.
- Continue planning college visits—research dates, costs, etc.
- Practice writing online applications: fill out rough drafts; don't submit them.

September
- Sign up for the SAT test by Sept. 20; test is administered on Oct. 5.
- Sign up for the ACT test by Sept. 20; test is administered on Oct. 26.
- Mark the calendar with admission and financial aid deadlines.
- Visit colleges—and don't just take the tour. Schedule an admissions interview if possible. Send thank-you notes to interviewers.
- Take on leadership roles in your school or community.
- Begin drafting college application essays. (Yes, really.)

October
- Sign up for the SAT test by Oct 18; test is administered on Nov. 2.
- The earlier you apply to some colleges, the better your chances might be for admission.
- Should you use the Common Application? See commonapp.org and individual colleges for details.
- Keep a copy of every form you submit.
- Talk with teachers and counselors about recommendations discuss your interests and college choices. Give each teacher/counselor your resume.
- Finalize portfolios, audition tapes, writing samples, or other required special submissions.
- Financial aid information is available from colleges; get it and check the due dates.
- Apply for scholarships.

November
- **MCPS DCCAPS deadline for 8th grade students to apply for the Middle College and P-TECH programs and for 10th grade students to apply for the Early College program is Nov. 1.**
- Sign up for the ACT test by Nov. 1; test is administered on Dec. 7.
- Sign up for the SAT test by Nov. 22; test is administered on Dec. 7.
- Ensure that your school has submitted your transcripts and letters of recommendation for your college applications.
- Finish completing college applications and essays.
- Submit college applications for early admissions programs. Consider applying online. (Be aware that many colleges charge an application fee.)

There are many placement options available for enrollment at MC, including submitting SAT and ACT scores.
*For a full list of options, visit **montgomerycollege.edu/assessment***