

**Collin Davis McDonald**  
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Assistant Professor  
Aerospace  
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## **Professional Positions**

Aircraft Maintenance Technician, Middle Tennessee State University, Aerospace. (2020 - 2022).

Owner/Manager, Multi Engine Training, LLC. (2018 - 2019).

Medical Relief Pilot, That They May Know, Papua New Guinea. (2018).

## **Education**

Master of Science, Middle Tennessee State Univ, 2022.  
Major: Aeronautical Science

Bachelor of Science, Middle Tennessee State Univ, 2017.  
Major: Aerospace

## **Licensures and Certifications**

Inspection Authorization, Federal Aviation Administration. (May 2022 - Present).

Commercial Pilot, Federal Aviation Administration. (October 2019 - Present).

Remote Pilot Certificate, Federal Aviation Administration. (October 2019 - Present).

Multi Engine Instructor, Federal Aviation Administration. (December 2017 - Present).

Certified Flight Instructor - Instrument, Federal Aviation Administration. (October 2017 - Present).

Airframe & Powerplant Mechanic License, Federal Aviation Administration. (June 2017 - Present).

Emergency Medical Technician (EMT), National Registry of Emergency Medical Technicians. (2017 - Present).

Certified Flight Instructor, Federal Aviation Administration. (November 2015 - Present).

Tailwheel Rating, Federal Aviation Administration. (May 2011 - Present).

## **Professional Memberships**

University Aviation Association. (May 2023 - Present).

## **Media Appearances and Interviews**

"AOPA Pilot Spotlight," Instagram. (November 18, 2022).

## **Presentations**

McDonald, C. D., Siao, D. H., Southeastern STEM Education Research (S2ERC) 2024 Conference, "Examining the Relationship between Classroom Assessment and Project Based Learning," S2ERC, Middle Tennessee State University, Murfreesboro, TN.

McDonald, C. D., Aviation Mental Health Symposium (AMHS) 2023, "Examination of Aviation Mental Health Research Ongoing in MTSU's Aerospace Department - Educational Panel Presentation," Middle Tennessee State University, Murfreesboro, TN. (November 1, 2023).

Waters, H., McDonald, C. D., Mosey, P. T., University Aviation Association (UAA) 2023 Conference, "Collegiate Aviation and Mental Health: An Assessment of Barriers to Mental Health Service Utilization," UAA, St. Petersburg, FL. (September 28, 2023).

McDonald, C. D., University Aviation Association (UAA) 2023 Conference, "Of Plagues and Commandments: COVID-19 and the Part 147 Rewrite," UAA, St. Petersburg, FL. (September 28, 2023).

McDonald, C. D. (Presenter), Southeastern STEM Education Research (S2ERC) 2023 Conference, "A Quantitative Analysis on the Affects of COVID-19 in Associate Programs versus Bachelor Programs using Initial Written Exam Scores for Aircraft Mechanics," SSERC, Tennessee Tech University. (January 13, 2023).

## **Contract, Fellowships, Grants and Sponsored Research**

McDonald, C. D., "2023 EXL Grant," Sponsored by Experiential Learning (EXL) Program, Middle Tennessee State University, \$207.97.

McDonald, C. D., "Tennessee Aviation Education Program Grant," Sponsored by Tennessee Aeronautics Division, State, \$4,800.00.

McDonald, C. D., "2022 EXL Grant," Sponsored by Experiential Learning (EXL) Program, Middle Tennessee State University, \$300.00.

McDonald, C. D., "Instructional Enhancement Grant," Sponsored by Middle Tennessee State University, Middle Tennessee State University, \$2,395.98.

## **Research Activity**

"International Aviation Summer Camp" (Planning). (2023 - Present).

Currently working with the International Affairs office on developing an Aviation Summer camp designed to allow international students spend 7-10 days at MTSU learning about aviation careers as well as how to apply for student visas and have a chance to experience local culture.

Project is in the development stages and estimated to be complete and running either August 2023 or summer of 2024.

"Aerospace Department Tour and Yield Data" (Planning). (2022 - Present).

Over the past year several times the term "yield" has been brought up in a Department or College level discussions. In the Department of Aerospace, we utilize tours that are intended to increase the recruitment yield of students that are interested in the program. By researching the freshman admission rates for the university we can then cross reference each program with the type of outreaches that the offer to prospective students. This could reveal whether or not outreach programs (ie: tours, camps, field trips, etc.) effectively can increase a department's yield.

Using data provided by Student Affairs, we can observe all the university's incoming freshmen statistics. Taking the top 10 and bottom 10 in yield percentage in this list we can then inspect to see which programs are offering outreach type events for incoming freshman (in attempt to see if these are related to that yield rate).

In the 2021-2022 Academic year, the Department of Aerospace tracked accurate data on the number and participants for Tours of the program. This data is continued to be tracked by the Outreach Coordinator. Part of the plans for this project is to compile 3-5 years of this data and compare it to the incoming freshman admission rates to see if tours directly affect student yield thereby potentially offering a means to improve department yield rates for underperforming programs.

For more background and status of the project see attached email chains.

"Aviation Maintenance Technician - Research Project" (On-Going). (2022 - 2023).

In January I presented the results of data I had gathered on COVID and Aviation Maintenance Student FAA written exam scores. While at the conference, I made a contact that was part of a qualitative version of the same project I was using quantitative data on. I am in the process of obtaining this data in attempt to create a more accurate representation on the data I have collected from Part 147 Maintenance Exam Scores. I have attached the correspondence emails as well as the published articles from the PI in two aviation journals.

My hope is this information will be able to be published in the Aviation Technician Education Counsel's (ATEC's) journal or the International Journal of Aviation, Aeronautics, and Aerospace (IJAAA) journal this summer or fall.

## **Teaching Experience**

AERO 3510, section 001, Instrument Operations in NAS. 3 credit hours. 25 enrolled.

AERO 1020, section 001, Theory of Flight. 3 credit hours. 85 enrolled.

AERO 1020, section 005, Theory of Flight. 3 credit hours. 85 enrolled.

AERO 2010, section 001, Aviation Weather. 3 credit hours. 10 enrolled.

AERO 3510, section 001, Instrument Operations in NAS. 3 credit hours. 6 enrolled.

AERO 3170, section 005, Aviation Safety. 3 credit hours. 30 enrolled.

AERO 3510, section 001, Instrument Operations in NAS. 3 credit hours. 24 enrolled.

AERO 2230, section 001, Professional Pilot I. 3 credit hours. 43 enrolled.

AERO 3510, section 001, Instrument Operations in NAS. 3 credit hours. 23 enrolled.

AERO 1020, section 001, Theory of Flight. 3 credit hours. 82 enrolled.

AERO 1020, section 005, Theory of Flight. 3 credit hours. 84 enrolled.

## **Teaching Innovation and Curriculum Development**

Revise Existing Course. AERO 1020 - Lecture Notes. August 2023.

AERO 1020 (Theory of Flight) is an introductory aeronautics class dealing with the four fundamental forces of flight. This content can be daunting for freshman students who may have never flown before in their lives. To attempt to alleviate overwhelming students with content, I created "Lecture Notes" that follow the content of the powerpoints and lectures that I use in class. This, in theory, allows the students to have an excellent starting point for their study notes without having to jot down everything discussed in class.

Attached are examples of the lectures notes. I have shared these with other faculty teaching the class as well in attempt to help them improve the quality of their classes without increasing their own workloads.

Revise Existing Course. AERO 3510 - ATC Tower Tours. August 2023.

This class discusses Air Traffic Control (ATC) operations as a participant in the National Airspace System (NAS). I have started coordinating with the Nashville Airport Terminal Radar Control Tower (TRACON) to have students tour the BNA ATC Tower and observe how these two ATC controllers (Tower and TRACON) function. This has proved to be a popular addition to the class that students have enjoyed.

Revise Existing Course. AERO 2010 - Aviation Weather. July 2023.

Revised the existing information presented in AERO 2010 to reflect the FAA's new Aviation Weather Handbook that came out in late 2022. This revision is intended to be a well organized template that would be capable of being taught by any of the faculty with no changes necessary except personal inputs in future classes.

Curricular Development. Clemson University Center for Workforce Development. 2022.

Clemson utilized a video I published on Youtube as part of their curricula for the CUCWD. See attached letter of use request from Jennifer Kornell of Clemson.

Revise Existing Course. AERO 3510 - Concentration Projects. 2022.

Created "Concentration Projects" for student's to apply the content from the class to their specific concentration's focus to increase engagement in the material.

## **Faculty Development Activities Attended**

Second In Command (SIC) Training on the Douglas DC-3 Aircrafts, "DC-3 SIC Rating," Flagship Detroit Foundation, Shelbyville, TN. (March 2023 - Present).

Instrument Proficiency Check, "IPC in DA-40 with MTSU's Flight School," MTSU Aerospace Department. (May 2022 - June 2023).

Faculty Fellowship, "LT&ITC Faculty Fellowship Program," MTSU LT&ITC, Murfreesboro, TN, United States of America. (2022 - April 2023).

Workshop, "New Faculty Development Series - Research and Publications," MTSU LT&ITC. (February 22, 2023).

Workshop, "Developing or Updating Your Teaching Philosophy Statement (TPS)," MTSU LT&ITC, Murfreesboro, TN, United States of America. (September 28, 2022).

Workshop, "New Faculty Orientation Course," MTSU LT&ITC. (September 8, 2022).

## **University Service**

Guest Lecturer - CHEM 1010 Class, College of Basic and Applied Sciences. (October 25, 2023).

UH 3000 Honors Lecture Series - Guest Speaker, University Honors College. (October 10, 2023).

Coordinator, MTSU Donor/Faculty DC-3 Flight. (June 9, 2023).

Poster Judge at CBAS Day, College of Basic and Applied Science. (March 21, 2023).

Faculty Line Request - Committee Member, Aerospace Department. (September 2022 - February 2023).

Guest Speaker, University Honors College. (October 14, 2022).

Guest Speaker, Honors Intro to Aerospace Class. (September 9, 2022).

## **Professional Service**

Board of Advisors, Motlow State Community College - Aviation Council Board, Shelbyville, TN. (August 2023 - Present).

Reviewer/Referee, Southeastern STEM Education Research Conference - 2024, Murfreesboro. (October 2023).

Reviewer/Referee, Southeastern STEM Education Research Conference - 2023. (October 2022).

## **Public Service**

Organizer, Sattler Foundation Aviation Education Session - DC3 Presentations, Lebanon. (August 12, 2023).

Volunteer, The Sattler Foundation Summer Camp, Lebanon, TN. (June 9, 2023).

Guest Speaker, The Sattler Foundation Youth Group Meeting. (May 21, 2023).

Volunteer, Browns Chapel Elementary Career Day. (May 15, 2023).

Volunteer, Eagleville Highschool MTSU Collegiate Day. (May 2, 2023).

Volunteer, St. Rose Elementary - Airport Campus Visit. (April 11, 2023).

Volunteer, Boy Scouts of America - Merit Badge University. (February 25, 2023).

Volunteer, Blackman Collegiate Academy Junior Class. (October 27, 2022).

Volunteer, Tennessee STEAM-A-Polooza Festival, Murfreesboro, TN. (October 14, 2022).