

Ph.D. in Human Factors

The Ph.D. in Human Factors is housed in the Department of Human Factors and Behavioral Neurobiology of the College of Arts & Sciences. It provides highly qualified students with the opportunity to complete a rigorous program in the field, equipping them with advanced knowledge, skills and techniques in research relevant to human factors.

The department offers broad research opportunities with an emphasis on high-quality applied research, specializing in challenging human performance projects.

At Embry-Riddle, students learn from industry experts and gain access to a wide variety of labs and facilities that support research and training objectives. Resources include flight simulators that emulate technically advanced aircraft, simulation software for uncrewed aerial systems, a team performance lab, physiology and color vision labs and the Research in User eXperience Lab (RUX).

The program focuses on core educational elements of the discipline, including sensation, perception, cognition and statistics, with specializations offered in three key research areas:

- Aviation/aerospace human factors
- Medical human factors
- Technology-enhanced learning and testing

The program is open to students who have earned a bachelor's or master's degree in Human Factors, Psychology or other related fields. By completion, students are expected to have an exemplary academic record, demonstrate independent research skills and show a commitment to pursuing research positions in academia, government or industry.

Program-Level Learning Outcomes

Students will:

- Demonstrate skills necessary for employment in industry, government, or academic institutions.
- Perform independent research to add to the body of knowledge in the field of human factors.
- Describe the key areas of human factors, sensation/perception, memory/cognition, research methods, statistics, ergonomics, and human-computer interaction.
- Disseminate research through presentation and publication.

Daytona Beach Program Requirements

Core Requirements	27
Options	9
Doctoral Requirements	48
Total Credits	84

Core Requirements

HFCT 620	Memory and Cognition	3
HFCT 501	Human Factors in Systems	3
HFCT 510	Research Design and Analysis I	3
HFCT 511	Research Design and Analysis II	3
HFCT 515	Ergonomics for Human Factors	3
HFCT 612	Human Performance, Limitation, and Error	3
HFCT 615	Sensation and Perception for Human Factors	3
HFCT 635	Human-Computer Interaction	3
HFCT 675	Multivariate Statistics: Factor Analysis and Data Reduction	3
Total Credits		27

Options

Option I: Program Support Courses - Non-Thesis

Electives		9
SCLM 511	Operations Research	
MGMT 520	Organizational Behavior, Theory, and Applications in Aviation	
HFCT 500	Systems Concepts, Theory, and Tools	
HFCT 520	Team Performance	
HFCT 521	Modeling Humans in Complex Systems	
HFCT 526	Aerospace Physiology	
HFCT 527	Advanced Psychopharmacology	
HFCT 540	Foundations of Public Health	
HFCT 545	Principles of Health, Systems, Policy and Management	
HFCT 548	Epidemiology and Public Health	
HFCT 590	Graduate Seminar	
HFCT 599	Special Topics in Human Factors	
HFCT 614	Human Factors in Medicine	
HFCT 616	Human Factors of Transportation	
HFCT 622	Human Factors in Entertainment Systems	
HFCT 624	Ergonomics and Biomechanics	
HFCT 625	Applied Testing and Selection	
HFCT 626	Human Factors Principles of Visual Communication	
HFCT 630	Applied Cognitive Science	
HFCT 640	Human Physiology and Adaptation	
HFCT 650	Human Factors of Aviation/Aerospace Applications	
HFCT 680	Graduate Seminar: Current Applications in Human Factors	
HFCT 690	Human Factors Capstone	
COIN 696	Graduate Internship	
HFCT 699	Special Topics in Human Factors	
HFCT 705	Small N Designs and Non-Parametric Analysis	
AVSF 611	Aviation/Aerospace System Safety	
MSAV 641	Production and Procurement Management in the Aviation/Aerospace Industry	
SFTW 500	Software Engineering Discipline	
SFTW 520	Formal Methods for Software Engineering	
Total Credits		9

Option II: Thesis

Elective		3
SCLM 511	Operations Research	
MGMT 520	Organizational Behavior, Theory, and Applications in Aviation	
HFCT 500	Systems Concepts, Theory, and Tools	
HFCT 520	Team Performance	
HFCT 521	Modeling Humans in Complex Systems	
HFCT 526	Aerospace Physiology	
HFCT 527	Advanced Psychopharmacology	
HFCT 540	Foundations of Public Health	
HFCT 545	Principles of Health, Systems, Policy and Management	
HFCT 548	Epidemiology and Public Health	
HFCT 590	Graduate Seminar	
HFCT 599	Special Topics in Human Factors	
HFCT 614	Human Factors in Medicine	
HFCT 616	Human Factors of Transportation	

HFCT 618	Human Factors in Aging: Behavioral and Biological Foundations	
HFCT 622	Human Factors in Entertainment Systems	
HFCT 624	Ergonomics and Biomechanics	
HFCT 625	Applied Testing and Selection	
HFCT 626	Human Factors Principles of Visual Communication	
HFCT 630	Applied Cognitive Science	
HFCT 640	Human Physiology and Adaptation	
HFCT 650	Human Factors of Aviation/Aerospace Applications	
HFCT 680	Graduate Seminar: Current Applications in Human Factors	
HFCT 690	Human Factors Capstone	
COIN 696	Graduate Internship	
HFCT 699	Special Topics in Human Factors	
HFCT 705	Small N Designs and Non-Parametric Analysis	
AVSF 611	Aviation/Aerospace System Safety	
MSAV 641	Production and Procurement Management in the Aviation/Aerospace Industry	
SFTW 500	Software Engineering Discipline	
SFTW 520	Formal Methods for Software Engineering	
Thesis		6
HFCT 700	Graduate Thesis	
Total Credits		9

Doctoral Requirements

HFCT 715	Supervised Teaching Experience	3
Choose Five of the Following: *		15
SCLM 511	Operations Research	
MGMT 520	Organizational Behavior, Theory, and Applications in Aviation	
HFCT 520	Team Performance	
HFCT 521	Modeling Humans in Complex Systems	
HFCT 526	Aerospace Physiology	
HFCT 527	Advanced Psychopharmacology	
HFCT 540	Foundations of Public Health	
HFCT 545	Principles of Health, Systems, Policy and Management	
HFCT 548	Epidemiology and Public Health	
HFCT 590	Graduate Seminar	
HFCT 599	Special Topics in Human Factors	
HFCT 614	Human Factors in Medicine	
HFCT 616	Human Factors of Transportation	
HFCT 618	Human Factors in Aging: Behavioral and Biological Foundations	
HFCT 622	Human Factors in Entertainment Systems	
HFCT 624	Ergonomics and Biomechanics	
HFCT 625	Applied Testing and Selection	
HFCT 626	Human Factors Principles of Visual Communication	
HFCT 630	Applied Cognitive Science	
HFCT 640	Human Physiology and Adaptation	
HFCT 650	Human Factors of Aviation/Aerospace Applications	
HFCT 680	Graduate Seminar: Current Applications in Human Factors	
HFCT 690	Human Factors Capstone	
COIN 696	Graduate Internship	
HFCT 699	Special Topics in Human Factors	

HFCT 705	Small N Designs and Non-Parametric Analysis	
AVSF 611	Aviation/Aerospace System Safety	
MSAV 641	Production and Procurement Management in the Aviation/Aerospace Industry	
SFTW 500	Software Engineering Discipline	
SFTW 520	Formal Methods for Software Engineering	
Dissertation		30
HFCT 800	Dissertation	
Total Credits		48

* Students entering the program with an MS degree may take Core courses towards the 15 required credit hours.

Suggested Plans of Study

BS to PhD

Students entering the program with a Bachelor's degree follow the plan below:

Year One

Requirements	Credits
HFCT 501 - Human Factors in Systems	3
HFCT 510 - Research Design and Analysis I	3
HFCT 615 - Sensation and Perception for Human Factors	3
Semester Hours	9

Requirements	Credits
HFCT 511 - Research Design and Analysis II	3
HFCT 515 - Ergonomics for Human Factors	3
HFCT 620 - Memory and Cognition	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 18

Year Two

Requirements	Credits
HFCT 612 - Human Performance, Limitation, and Error	3
HFCT 675 - Multivariate Statistics: Factor Analysis and Data Reduction	3
Elective	3
Semester Hours	9

Requirements	Credits
HFCT 635 - Human-Computer Interaction	3
Elective	3
Elective	3
Semester Hours	9

Requirements	Credits
Qualifying Exam	
Semester Hours	0

Total Credits

Total Hours for All Requirements: 18

Year Three

Requirements	Credits
HFCT 715 - Supervised Teaching Experience	3
Elective	3
Elective	3
Semester Hours	9

Requirements	Credits
Elective	3
Elective	3
Elective	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 18

Year Four

Requirements	Credits
HFCT 800 - Dissertation	9
Semester Hours	9

Requirements	Credits
HFCT 800 - Dissertation	6
Semester Hours	6

Total Credits

Total Hours for All Requirements: 15

Year Five

Requirements	Credits
HFCT 800 - Dissertation	9
Semester Hours	9

Requirements	Credits
HFCT 800 - Dissertation	6
Semester Hours	6

Total Credits

Total Hours for All Requirements: 15

MS to PhD

Students entering the program with a Master's degree follow the plan below:

Year One

Requirements	Credits
HFCT 715 - Supervised Teaching Experience	3
Elective	3
Elective	3
Semester Hours	9

Requirements	Credits
Elective	3
Elective	3
Elective	3
Semester Hours	9

Requirements	Credits
Qualifying Exam	
Semester Hours	0

Total Credits

Total Hours for All Requirements: 18

Year Two

Requirements	Credits
HFCT 800 - Dissertation	9
Semester Hours	9

Requirements	Credits
HFCT 800 - Dissertation	6
Semester Hours	6

Total Credits

Total Hours for All Requirements: 15

Year Three

Requirements	Credits
HFCT 800 - Dissertation	9
Semester Hours	9

Requirements	Credits
HFCT 800 - Dissertation	6
Semester Hours	6

Total Credits

Total Hours for All Requirements: 15