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AEROSPACE PHYSIOLOGY OFFICER

AIR FORCE SPECIALTY CODE 13HX



CAREER FIELD

EDUCATION AND TRAINING PLAN

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TABLE OF CONTENTS

Section A – General Information	4
Section B – Career Field Progression Information.....	5
Section C – Training Management	7
Attachment 1 – Assignment Specific Training.....	10
Attachment 2 – Training Documentation Example	17
Attachment 3 – APO 101 Course Training Standard	18

Welcome to Aerospace Physiology!

You have joined a team of science-minded Airmen dedicated to ensuring the readiness, survivability, safety, and lethality of aircrew and operators serving not just in the United States Air Force, but throughout the Department of War as well as our strategic partners. Our scope is wide. We serve in multiple arenas such as Aircrew Training, High-Altitude Flight operations, Human Performance, and Mishap Prevention. You will interact and work alongside amazing men and women ensuring fight-ready Airmen, a fight-ready Force, and capabilities needed to project combat power globally.

As an Air Force Aerospace Physiology Officer, your role is defined by proactive leadership and unwavering commitment. It is a demanding and rewarding charge to be at the forefront, to aggressively tackle challenges and lean into the unknown. Be a **Catalyst for Action**: Inspire your team to overcome obstacles and set the standard for excellence. Be a **Driving Force**: Drive needed changes and improvements to ensure mission success. Always **Embody Relentless Pursuit**: Embrace your responsibilities with vigor, pursuing solutions and motivating Airmen through your own example of unwavering commitment and decisive action. This dynamic leadership is key to optimizing an Airman's performance and ensuring mission readiness and lethality in extreme environments.

Never forget that you put on the uniform and how incredible it is that you chose to become part of the 1% of Americans who answered the call. I have never stopped being impressed with the caliber of Aerospace Physiologists I see coming into this career field. The future is bright. Thank you again for your service to our country.



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CFM, Aerospace Physiology (13HX)

PREFACE

***Aerospace Physiology Mission:** Provide mission support while training aircrew and operators on physiological stresses and human factors implications to increase performance and mitigate mishaps.*

***Aerospace Physiology Vision:** Aircrew trainers who specialize in aircraft weapon system's human factors training and mission support devoted to warfighter lethality and survivability.*

Section A – General Information

1. Overview. The 13HX Career Field Education and Training Plan (CFETP) is a comprehensive core training document that identifies minimum education and training requirements and support resources for the 13HX Air Force Specialty Code (AFSC). It is a "training road map" for the Aerospace Physiology Officer (APO) career field and provides APOs with a clear path to success that makes career field training identifiable, measurable, and budget-defensible and ensures operational readiness of new APOs. In addition, it provides suggested Continuation Training for a fully upgraded APO to maintain knowledge and awareness of relevant and current information pertaining to the scope of practice within Aerospace Physiology (AP).

1.1. Use of the guidance provided in this CFETP provides the foundation for effective and efficient education and training of individuals in the 13H career field. Waivers must be forwarded to the 13H Career Field Manager (CFM) at af.a34p.workflow@us.af.mil to accommodate availability constraints or personal emergencies.

2. Student Management.

2.1. Training documentation will be done in accordance with AFMAN 11-403, Chapter 6. Use Air Force approved digital training documentation methods, such as TBA 2.0, to the greatest extent possible. Coordination and collaboration with HAF/A34P is critical to stay ahead of best practices.

2.2. Commanders, in consultation with respective 13H MAJCOM PMs (MPMs), should follow DAFMAN 36-2100 in the case of AFSC crossflows/retraining/reclassification, DAFMAN 48-123 for medical standards questions, and AFPCI 36-112 for any issues regarding Line officer Initial Skills Training Reclassification procedures.

2.3. Before going to APO 101, 13Hs will have a cleared and current FCIII and a DD2992 in hand to complete all mandatory APO requirements (altitude chamber, ROBD, centrifuge, etc).

2.4. For questions concerning this CFETP, communicate to the appropriate level, i.e. Flight Commander (Flt/CC), Squadron CC, MPMs, etc.

3. CFETP Maintenance and Use. The CFETP is maintained and certified by the 13H CFM. HAF AF/A34P is the office of primary responsibility (OPR) for CFETP maintenance.

3.1. The 13H CFM is the CFETP approval authority. The 13H CFM will initiate a policy review as needed to ensure CFETP currency, accuracy, and relevancy. During the review period, the 13H CFM, AP Lead

Command, and MPMs will identify and coordinate requirements that will be included in and/or removed from the CFETP. The 13H CFM will also determine if, when, how, and where Specialty Training Requirements Team (STRT) workshops and/or Utilization and Training Workshops (U&TWs) should be convened to address CFETP issues that cannot be resolved during the annual review.

3.2. The 13H CFM, MPMs, and AP subject matter experts (SMEs) determine and develop 13H upgrade training based on career field requirements established during CFETP reviews, STRT workshops, U&TWs, Council of Aerospace Physiology Executives (CAPE) meetings, and other forums. The education, training, and experience required for upgrade to the 13H3 AFSC are listed starting in Section 6 of this document.

3.3. 342d Training Squadron (342 TRS) staff develop and revise formal resident training based on requirements established via CFETP reviews, STRT workshops, and/or U&TWs. 342 TRS is also responsible for coordinating with 2nd Air Force (2AF), 37th Training Wing (37 TRW), and 37th Training Group (37 TRG) to obtain the resources needed to provide the identified training. 342 TRS should notify MPMs on who is going to be within their MAJCOM, to include info on training performance, centrifuge qualification, airsickness issues, etc., to allow MPMs the ability to tailor training collaboration efforts with the gaining Sq/CCs.

Section B – Career Field Progression Information

4. 13H Career Progression. Table 1, 13H Upgrade Progression, outlines expectations for 13H career progression. All upgrading APOs should communicate their concerns, questions, or issues with their respective chain of command and should encourage collaboration with MPMs to optimize local leadership awareness.

Table 1: 13H Training Progression (13H1, 13H3, 13H4)

AFSC Designator	Title	Training Requirements	Experience Requirements
13H1	Entry Level	See section 6.1.	None
13H3	Upgraded Level	See section 6.2.	Initial Skills Training (IST)
13H4	Staff Level*	See section 6.2.6.	CFM discretion
*This designation denotes a level of functional responsibility and is restricted to select positions above wing level. It does <u>not</u> denote additional specialty qualification.			

4.1. Career Progression Overview. Adequate training and timely progression from the entry level to the Upgraded level (13H3) is integral to ensure the AP enterprise can accomplish its goal to support operational units. The guidance provided in this CFETP ensures officers receive timely, AFSC-relevant training at appropriate milestones within their career. In addition to the CFETP, effective mentoring by Sq/CCs, MPMs, Flt/CCs, and senior APOs is critical to planning, managing, and

conducting an effective training program.

4.2. Assignment-Specific Training Requirements. Assignment-specific training requirements (Attachment 1) are unique to an AP location and are not considered core 13H upgrade requirements. The APO should complete MAJCOM specific training after being assigned to the specified location, and/or before physically PCSing as deemed necessary by the gaining Sq/CC in collaboration with their MPM. **Note:** For officers transitioning from a non-chamber location to a chamber location, ensure gaining and losing Sq/CCs collaborate with respective MPMs to determine timeframe needed for optimized turnover to ensure that the 13H3 is operationally useful as an APO on chamber flights shortly after PCSing. (See Attachment 1)

4.2.1 Additional Instructor Courses. While not required for upgrade to 13H3, the following courses should be certified on an as-needed basis given current or future mission sets/MAJCOM requirements: *Track H, Track J, Track R, and Initial Course*. All course material, components, instructor guides, and student guides can be found on the Air Education and Training Command (AETC) bookstore. Certification will be done in accordance with AFMAN 11-403, Chapter 6.

4.3. AF Reserve Personnel. For Individual Mobilization Augmentee (IMA) Reservist Aerospace Physiologists, the owning MAJCOM is responsible to coordinate initial training (if necessary), to include ensuring that appropriate funding is established. All MPMs should collaborate to ensure that the IMA member is adequately trained as well as to ensure optimized currency and utilization of the member's mission capabilities. This could be through MAJCOM-to-MAJCOM TDY's for mission awareness/support, a Flt/CC in one MAJCOM providing training oversight on an IMA Reservist managed by another MAJCOM, cross-MAJCOM training opportunities, etc. For awareness and example, an IMA member may be stationed in AFGSC but is able to support missions in any MAJCOM as needs arise. For questions, please contact the HAF Reserve Liaison/coordinator at the AF/A34P workflow: af.a34p.workflow@us.af.mil.

4.3.1. The HAF Reserve Liaison/coordinator will maintain a master tracking document, accessible by all MPMs, detailing TF member qualifications, currency, and availability for cross-MAJCOM support.

5. Duty Badges

5.1. Operations Support Badge. 13HX officers wear the Operations Support Badge (OSB).

5.1.1. Basic Badge. The basic badge is awarded upon completion of the IST pipeline (6.1).

5.1.2. Senior Badge. The senior badge adds a star to the top of the badge. Wear the senior badge after 7 years in the career field.

5.1.3. Master Badge. The master badge indicates the final step in the occupational series. Wear the master badge after 15 years in the career field.

5.1.4. Prior Enlisted Officers. When serving as an officer in the same career field as when enlisted, count both time in the enlisted and officer career fields to determine the earned badge level.

5.2. Non-Rated Officer Aircrew Badge. To support squadron readiness and mitigate physiological episodes, all APOs will be assigned to X-prefixed duty positions as basic aircrew and will wear the non-rated officer aircrew badge.

5.2.1 Wear of the non-rated officer aircrew badge by APOs will be done in accordance with guidance found in AFMAN 11-402, *Aviation and Parachutist Service*. Please work with your unit leadership and Host Aviation Resource Management (HARM) office to accomplish necessary requirements for flight, in accordance with AFMAN11-2PHYSV1.

Section C – Training Management

6. Training. This section describes the mandatory training that leads to the completion of IST (fully qualified 13H1), and eventual awarding of the 13H3 and 13H4 AFSCs. It is the responsibility of the gaining Sq/CC to ensure that individual APOs within their unit are fully upgraded and mission ready. Sq/CCs should liaise with MPM to ensure training plan meets AP career field needs.

6.1. 13H1 Initial Skills Training Pipeline. The flow of initial skills training will encompass the courses found in this section. The AP Schoolhouse will request a waiver from the 13H CFM if circumstances prevent an officer from accomplishing requirements within the established timeframe. Maximum flexibility is afforded to the AP Schoolhouse to appropriately designate the flow of the pipeline and optimize use of the training time.

6.1.1. APO 101 Course – This course provides the knowledge and skills to perform basic duties as an APO. **Note:** Track A, Track T, & Track E certifications are included within the APO 101 Course. Refer to Attachment 3 for a detailed description. The APO 101 Course OPR is the 342 TRS.

6.1.2. Enhanced Learning and Instructional Techniques Enrichment (ELITE) - Mobile Training Team

6.1.3. Human Factors Workshop for Safety Professionals (HFWSP) (WCIP05AH)

6.1.4. Crew Resource Management (CRM) Facilitator Training

6.1.5. Training Quotas. The above pipeline will be centrally funded. Course descriptions, administrative instructions/requirements, and security and equipment requirements can be found on the AF Education and Training Course Announcement website: <https://usaf.dps.mil/teams/app10-etca/SitePages/home.aspx>. Send any questions to the 13H CFM and 13H CFM office at af.a34p.workflow@us.af.mil.

6.2. 13H3 Upgrade Training. The member is required to complete the following for final upgrade to 13H3. These courses may be taken at any time after the member has completed IST.

6.2.1. Air Force Safety Center (AFSEC) Courses: Aircraft Mishap Investigation Course (AMIC) (WCIP05A) & Aviation Safety Program Management (ASPM) (WCIP09B)

6.2.2. Operational Requirements:

6.2.2.1. Instruct at four (4) Quarterly Flying Safety Meetings (or equivalent such as Squadron Stand-Up, Safety Stand Down, Safety Training Days, etc).

6.2.2.2. May instruct at four (4) Instrument Refresher Courses.

6.2.2.3. Familiarize with Base Safety Office(s).

6.2.2.4. May attend two (2) Quarterly Aeromedical Council (AMC) meetings.

6.2.2.5. Schedule 1 on 1 Mentoring Session with a 13H O-5 or O-6.

6.2.3. Non-rated Aircrew requirements. Complete AP Ground and Continuation Training: reference - AFMAN11-2PHYSV1. This must be prioritized to ensure ability to perform non-rated aircrew duties/start flying and integrating with aircrew. **Note:** ensure SERE courses SV85A and SV97A are completed in accordance with AFMAN11-2PHYSV1, paragraph 2.6.4.2.

6.2.4. Sign Off. Sq/CCs may assign non-AP personnel in tangent with Stan/Eval to sign off 13H1s (reference AFMAN 11-403, Chapter 6). Sq/CCs will collaborate with appointed local certifiers and document 13H3 upgrade via 2096. While in person evaluations/certifications are preferred, virtual evaluations may be accomplished with approval of MPM on an as needed basis. Finally, once 13H1 upgrade to 13H3 is complete, Sq/CCs will send courtesy memo to the MPM for awareness (see Attachment 2).

6.3. MAJCOM PM requirements. While Sq/CCs are required to organize, train, and equip their airmen, MPMs are responsible to ensure the creation of applicable supplemental guidance. MPMs must actively support the Sq/CC in the upgrade process of the APOs within their AOR.

6.4. 13H4 Recommended Prerequisites. 13H4 designates the Aerospace Physiology Officers serving in staff assignments. Due to the nature of these positions, completion of the following is highly encouraged:

6.4.1. Certified Associate in Program Management (CAPM) and/or Project Management Professional.

6.4.2. Deployment experience, ideally as a Flight Safety Officer or Chief of Safety.

6.4.3. Safety Investigation Board or Accident Investigation Board experience highly desired.

6.5. 13H Continuation Training. The following are optional courses/unit funded. MDS, mission requirements, and Sq/CCs in consultation with MPMs determine attendance. This list is *NOT* all inclusive. For example, not all APOs will need NVGAIC training unless the local mission needs require that support (may already be taught by a contractor).

6.5.1. USAF Night Vision Goggle Academic Instructor Course (NVGAIC)

6.5.2. Basic Airborne School

6.5.3. Air Force Continuous Process Improvement Green Belt Academics Course <https://usaf.opusworks.com/>

6.5.4. Military Freefall Parachutist Course

6.5.5. Arctic Survival (S-V87-A)

6.5.6. Top Knife II - USAF Flight Surgeon/Aerospace Physiology High Performance Aircraft Training Course

6.5.7. Top Knife for Remotely Piloted Aircraft and Intelligence, Surveillance and Reconnaissance Operations

6.5.8. AMIP USAF Medical Investigator Workshop

6.5.9. Cross Mission Awareness (exchange between APOs at differing MDS locations, bases, MAJCOMs, etc).

6.6. Annual Conferences. APOs are strongly encouraged to attend various annual conferences which are critical to maintaining knowledge relevancy and currency. These conferences include, but are not limited to: The Air Force Association's Air, Space, and Cyber Conference, USAF Aircrew Performance Summit, the Aerospace Medical Association Annual Scientific Meeting, etc. If you discover conferences that you deem beneficial to the AP enterprise, please relay this information to the 13H CFM office at af.a34p.workflow@us.af.mil.

Attachment 1 – Assignment Specific Training

1. Assignment Specific Training. The items listed below are specific to an AP assignment and are not considered core 13H upgrade requirements. The APO will receive the following training (as applicable) as soon as possible after being assigned to the specified base. The APO trainee will demonstrate proficiency and understanding in the respective training areas, as ensured by the certifier.

1. Gyro Integrated Physiological Trainer (IPT) II Operations			
Assignment applicability: Columbus AFB, Laughlin AFB, Randolph AFB, Sheppard AFB, Vance AFB Reference: AP SharePoint (https://usaf.dps.mil/sites/Aerospacephysiology): Gyro IPT II Operations & Maintenance (O&M) Manual, v. Apr 2015;			
Certification for OJT			
Training Start Date	Training Complete Date	Trainee Initials	Certifier Initials
Tasks, Knowledge, Activities, and Technical References			
1.1. Crew Chief			
1.1.1. Training requirements and system components (ref: O&M manual, 1.4)			
1.1.2. Run daily and start procedure checklists (ref: O&M manual, 2.2.1. and 3.3.1)			
1.1.3. Emergency procedures (ref: O&M manual, 2.2.5.-2.2.7)			
1.1.4. Run daily shut-down procedure checklist (ref: O&M manual, 2.2.4)			
1.1.5. Session operations and safety briefing (ref: O&M manual, xvi & 2.2.2.2)			
1.2. Operator			
1.2.1. Training requirements and system components (ref: O&M manual, 1.4)			
1.2.2. Session operations (ref: O&M manual, 2.3.5)			
1.2.3. Emergency procedures (ref: O&M manual 2.2.5.-2.2.7)			

1.2.4. Post-flight procedures (ref: O&M manual, 2.2.5.-2.2.7)

1.3. Lecturer

1.3.1. Training requirements

1.3.2. Vestibular systems and Somatogyral Illusions (ref: AFRL-SA-WP-SR-2016-0018 Handbook of Aerospace and Operational Physiology, 2nd edition)

1.3.3. Complete Basic Flight Course Computer-Based Training

1.3.4. Familiarization flight in Gyro IPT II using local procedures

1.4. Vestibular Illusions (ref: O&M manual, Table 1-1)

1.4.1. Somatogavic Illusion

1.4.1.1. Fly Somatogavic Illusion profile

1.4.1.2. Practice Somatogavic Illusion lecture

1.4.2. Leans Illusion

1.4.2.1. Fly Leans Illusion profile

1.4.2.2. Practice Leans Illusion lecture

1.4.3. Coriolis Illusion

1.4.3.1. Fly Coriolis Illusion profile

1.4.3.2. Practice Coriolis Illusion lecture

1.4.4. Graveyard Spin Illusion

1.4.4.1. Fly Graveyard Spin Illusion profile

1.4.4.2. Practice Graveyard Spin Illusion lecture

1.4.5. Graveyard Spiral Illusion

1.4.5.1. Fly Graveyard Spiral Illusion profile

1.4.5.2. Practice Graveyard Spiral Illusion lecture

1.4.6. Nystagmus Illusion

1.4.6.1. Fly Nystagmus Illusion profile

1.4.6.2. Practice Nystagmus Illusion lecture

1.5. Maintenance *(not required but encouraged if time permits)*

1.5.1. Training requirements and system components (ref: O&M manual, 1.4. and 2.1)

1.5.2. Torque setting (ref: O&M manual, 3.6)

1.5.3. Troubleshooting (ref: O&M manual, 4.2)

1.5.3.1. ETC contact info

1.5.3.2. Power supply and emergency shut-off (ref: O&M manual, 2.2.5.2)

1.5.3.3. Check and replace fuses (ref: O&M manual, Table 5-2)

1.5.3.4. Check and adjust pressure (ref: O&M manual, 1.4.2.5. & 3.3.1., part 8)

1.5.3.5. View logs (ref: O&M manual, 3.1.6)

1.5.4. Run daily checklist (ref: O&M manual, 2.2.1)

2. F-22 Ground Pressure Breathing for Altitude Training (GPBAT) Operations

Assignment applicability: Langley AFB, VA; Reference: AP SharePoint (<https://usaf.dps.mil/sites/Aerospacephysiology>): Ground-Level Pressure Breathing for Altitude Training Link.

Certification for OJT			
Training Start Date	Training Complete Date	Trainee Initials	Certifier Initials
Tasks, Knowledge, Activities, and Technical References			
2.1. GPBAT Purpose			
2.2. TTU-529/E Man-Side Test Unit			
2.2.1. TTU-529/E Safety			
2.2.2. TTU-529/E Configuration/Start-up			
2.2.3. TTU-529/E Shut down			
2.2.4. TTU-529/E Storage			
2.3. GPBAT Lab and Profiles			
2.3.1. Pre-GBPAT Lab Briefing			
2.3.2. GPBAT Training Profile 1			
2.3.3. GPBAT Training Profile 2			
2.3.4. GPBAT Training Profile 3			
2.3.5. GPBAT Training Profile 4			
2.3.6. Post-GBPAT Lab Briefing			
2.4. Manage GPBAT Reactions and EPs			

3. Centrifuge Operations

Assignment applicability: Wright-Patterson AFB; Reference: USAF ATFS-400-31 High Performance Human Centrifuge, 2017

Certification for OJT

Training Start Date	Training Complete Date	Trainee Initials	Certifier Initials

Tasks, Knowledge, Activities, and Technical References

3.1. Centrifuge System Overview

3.2. Controls, Checks, and Safety

3.3. Run Modes & Operating Procedures

3.4. System Utilities and Editors

3.5. Tactical Flight & Auxiliary Applications

3.6. Lockout Tagout Procedures

3.7. Troubleshooting Procedures

3.8. Control Room Video Display and Controls

3.9. Cockpit Module Exchange

3.10. Cockpit Module Configuration Change

3.11. Emergency Procedures

3.12. Complete AF Form 4293 (student grade sheet)

3.13. Conduct AFMAN 11-404 Acceleration Academic Instruction

3.14. Conduct AGSM Performance Debrief and Critique

4. Hypobaric Chamber Operations.

Assignment applicability: For APOs whose duties require chamber operations at a unit with a Hypobaric Chamber. To be completed as soon as practical upon assignment to those duties.

Certification for OJT			
Training Start Date	Training Complete Date	Trainee Initials	Certifier Initials

Tasks, Knowledge, Activities, and Technical References

4.1. Obtain qualification on Aerospace Physiology Officer (APO) Duties, Responsibilities, & Emergency Procedures (EPs) - Minimum 6 chamber flights (Must be a mix of 2 Initial, 2 Refresher, and 2 may be simulated/exercise cases). **Note:** Flt/CC is always able to add more chamber flight reps as determined prior to final sign-off.

4.2. Inside Observer (IO) Duties (*must be done in the following order: IO2 → IO1 → IO3; “Real-World” refers to operational training flight*)

4.2.1. Obtain qualification on IO2 Duties, Responsibilities, & EPs (Minimum 2 Real-World Flights with a mix of Refresher & Initial classes)

4.2.2. Obtain qualification on IO1 Duties, Responsibilities, & EPs (Minimum 2 Real-World Flights with a mix of Refresher & Initial classes)

4.2.3 Obtain qualification on IO3 Duties, Responsibilities, & EPs (Minimum 4 Real-World Flights with a mix of Refresher & Initial classes)

4.3. Obtain qualification on Recorder Duties, Responsibilities, & Emergency Procedures (EPs).

4.4. Understand Crew Chief Duties, Responsibilities, & EPs.

4.5. Understand Chamber Operator Duties, Responsibilities & EPs.

4.6. Understand Lock Operator Duties, Responsibilities, & EPs.

4.7. Understand Lecturer Duties, Responsibilities, & EPs.

4.8. Demonstrate Ability to provide corrective action for Hypoxia

4.9. Demonstrate Ability to provide corrective action for Hyperventilation

4.10. Demonstrate Ability to provide corrective action for Anxiety/Claustrophobia

4.11. Demonstrate Ability to provide corrective action for Barotitis Media

4.12. Demonstrate Ability to provide corrective action for GI discomfort

4.13. Demonstrate Ability to provide corrective action for Barodontalgia

4.14. Demonstrate Ability to provide corrective action for DCS

4.15. Demonstrate Ability to provide corrective action for Unconscious/Unresponsive Reactor

4.16. Demonstrate Ability to respond to Fire/Smoke/Fumes

4.17. Demonstrate proper use of Politzer Bag

4.18. Demonstrate Ability to respond to Hypobaric Chamber Power Loss

4.19. Demonstrate Ability to respond to Loss of Oxygen Supply to Hypobaric Chamber

4.20. Demonstrate Ability to respond to Hypobaric Chamber Pump Failure

4.21. Execute DCS Reactor Plan and Notification

4.22. Plan/Conduct Joint APTU and EMS chamber Reactor Response Exercise

TRAINING NOTES:

Attachment 2 – Training Documentation Example

Host-Base/Wing
Letterhead

Date

MEMORANDUM FOR XXX MAJCOM PM

FROM: XXX Sqdn Office Symbol
XXXX AFB, XX

SUBJECT: Certification of 13H3 AFSC Upgrade Training Completion for 1Lt XXXX

1. I certify that 1Lt XXXX has completed all task, knowledge, activity, and experience requirements listed in the 13H CFETP for upgrade to the 13H3 AFSC.
2. Please contact me at DSN 123-4567 if you have any questions.

//Signature//
Lt Col XXXXXXXXX
Sqdn Commander

Attachment 3 – APO 101 Course Training Standard

1. Qualitative Requirements.

QUALITATIVE REQUIREMENTS

Behavioral Statement CTS Coding System	
Code	Definition
K	Subject Knowledge Training - The verb selection identifies the individual's ability to identify facts, state principles, analyze, or evaluate the subject
P	Performance Training - Identifies that the individual has performed the task to the satisfaction of the course; however, the individual may not be capable of meeting the field requirements for speed and accuracy.
pk	Performance Knowledge Training - The verb selection identifies the individual's ability to relate simple facts, procedures, operating principles, and operational theory for the task.
-	No training provided in the course or CDC.
X	Training is required but not provided due to limitations in resources.
<small>Each CTS element is written as a behavioral statement. The detail of the statement and verb selection reflects the level of training provided by resident training and career development courses. Individual behaviors that match numbers for each task/outcome are listed immediately following narrative.</small>	

2. Task, Knowledge, and Behavioral Codes. The following are line items for the APO 101 Course Training Standard.

TASK, KNOWLEDGE, AND BEHAVIORAL CODE

Competencies, Behaviors, and Learning Outcomes	Behavioral Codes Used to Indicate Training/Information Provided via ICW and/or course
1. HUMAN PERFORMANCE (HP) OPTIMIZATION	
1.1. PERFORMANCE THREATS Description: The process of recognizing human factors and environmental threats that negatively impact performance in the operational environment.	

<p>1.1.1. Performance Threats (Basic) Required Behaviors:</p> <p>1. Monitors and describes signs of crew impairment during simulated or real-time operations for the purpose of mitigating risks 2. Delivers briefings on foundational human factors concepts to strengthen decision-making, situational awareness, and mission effectiveness</p> <p>Criteria: <i>Scope: Specific Area</i></p>	
<p>1.1.1.1. Determine causes and countermeasures of self-imposed performance threats in aviation (1)</p>	<p>K</p>
<p>1.1.1.2. Determine hazards and mitigations associated with noise and vibration exposure in aviation (1)</p>	<p>K</p>
<p>1.1.1.3. Demonstrate an understanding of causes and countermeasures of fatigue and circadian rhythm disruption. (2)</p>	<p>K</p>
<p>1.1.1.4. Determine causes and countermeasures of thermal stress in aviation. (2)</p>	<p>K</p>
<p>1.1.1.5. Demonstrate, by AP Schoolhouse assignment, an understanding of fatigue mitigation strategies for aviation operations. (2)</p>	<p>P</p>
<p>1.1.1.6. Demonstrate, by AP Schoolhouse assignment, an understanding of human factor trend analysis. (2)</p>	<p>P</p>
<p>1.1.1.7. Demonstrate, through AP Schoolhouse assignment, an understanding of human performance improvement. (2)</p>	<p>P</p>
<p>1.1.1.8. Demonstrate, through AP Schoolhouse assignment, an understanding of HUD/AGSM performance review and G-LOC indicator assessment. (2)</p>	<p>P</p>
<p>1.1.1.9. Demonstrate, through AP Schoolhouse assignment, an understanding of computer-based tools for altitude DCS risk assessment. (2)</p>	<p>P</p>
<p>1.1.1.10. Demonstrate, through completion of the Sleep Activity Fatigue Task Effectiveness – Fatigue Avoidance Scheduling Tool (SAFTE- FAST) training videos, an understanding of this capability (all 6 videos are at this link: Training Academy SAFTE-FAST (saftefast.com)). (1)</p>	<p>P</p>
<p>1.2. HUMAN FACTORS IN SYSTEMS INTEGRATION</p> <p>Description: Integrating human factors into system design, development, testing and implementation.</p>	

<p>1.2.1. Human Factors in Systems Integration (Basic) Required Behaviors:</p> <p>1. Familiarizes self with current products and systems that optimize HP</p> <p>Criteria: <i>Scope: Specific Area</i></p>	
<p>1.2.1.1. Identify the purpose, composition, and functions of AF Human Performance Enhancement programs and technology (1)</p>	K
<p>1.2.2. Human Factors in Systems Integration (Intermediate) Required Behaviors:</p> <p>1. Research human factors principles to integrate into system design (e.g., cognition, vision, manipulation) 2. Analyzes physical and cognitive demands of proposed system operation(s) to identify performance threats 3. Educates aircrew on best practices on new life support systems at installations to improve safety and performance</p> <p>Criteria: <i>Scope: Integration with concerned areas</i></p>	
<p>1.2.2.1. Identify the principles and characteristics of aided night vision and the use of Night Vision Devices (NVD's) (1)</p>	K
<p>1.2.2.2. Identify principles and characteristics of human factors (2)</p>	K
<p>1.2.2.3. Identify principles and characteristics of Situational Awareness (SA) and countermeasures to attention management threats (2)</p>	K
<p>1.2.2.4. Identify the purpose and components of the AF crew resource management (3)</p>	K
<p>1.2.2.5. Demonstrate, through AP Schoolhouse assignment, principles of aviation safety and mishap prevention (3)</p>	P
<p>1.2.2.6. Demonstrate, through AP Schoolhouse assignment, an understanding of aviation psychology and aeronautical engineering concepts (3)</p>	P
<p>1.2.2.7. Demonstrate, through AP Schoolhouse assignment, an understanding of human systems integration (3)</p>	P
<p>1.3. SYSTEM DESIGN AND OPERATIONS</p> <p>Description: Applying physiological knowledge and principles to develop personnel systems while integrating operational safety and risk management.</p>	

<p>1.3.1. System Design and Operations (Basic) Required Behaviors:</p> <ol style="list-style-type: none"> 1. Delivers training on human physiological responses to system features encountered during high-altitude operations 2. Collects and documents physiological responses (e.g., heart rate, oxygen saturation, ROBD Ops) during evaluations of personnel <p>Criteria: <i>Scope: Specific Area</i></p>	
<p>1.3.1.1. Identify basic principles of flight and flight operations (1)</p>	<p>K</p>
<p>1.3.1.2. Given a flying simulator, demonstrate basic aircraft control and operation (1)</p>	<p>P</p>
<p>1.3.1.3. Identify the physiological characteristics and limitations of vision in flight (2)</p>	<p>K</p>
<p>1.3.1.4. Identify ROBD and HFT background, purpose, components, theory of operation, and management of ROBD Reactions/Emergency Procedures. (2)</p>	<p>K</p>
<p>1.3.1.5. Demonstrate operation of the ROBD through the configuring/programing and start-up of the ROBD and training profile, the configuring of HFT and X-Plane software, and the shutting down and storage of the ROBD/HFT. (2)</p>	<p>P</p>
<p>1.3.1.6. Demonstrate an understanding of ROBD/HFT operations, through the conducting of a ROBD Training Session. (2)</p>	<p>P</p>
<p>1.3.1.7. Explain principles and characteristics of Aircrew Rotational Training (ART) (1)</p>	<p>K</p>
<p>1.3.2. System Design and Operations (Intermediate) Required Behaviors:</p> <ol style="list-style-type: none"> 1. Develops risk mitigation strategies for identified threats 2. Collaborates with engineers to provide human factors input <p>Criteria: <i>Scope: Integration with concerned areas</i></p>	
<p>1.3.2.1. Describe principles and characteristics of aircraft pressurization systems (1)</p>	<p>K</p>
<p>1.3.2.2. Explain principles and characteristics of aircraft oxygen systems (1)</p>	<p>K</p>
<p>1.3.2.3. Explain principles and characteristics of Aircrew Flight Equipment (2)</p>	<p>K</p>

<p>1.3.3. System Design and Operations (Advanced) Required Behaviors:</p> <ol style="list-style-type: none"> 1. Guides acquisition strategy by aligning system capabilities with human physiological limits 2. Oversees complex countermeasure protocols to optimize HP and reduce physiological stress in high-demand operational settings (e.g., circadian adaptation for long-duration missions, spatial disorientation reduction strategies) 3. Integrates training curricula with new technologies and HP data to enhance operator readiness for real-world missions 4. Leads integrated performance assessments to ensure cohesive functionality (e.g., helmets, masks, suits) and negotiating system changes and policy <p>Criteria: <i>Scope: Integration with organizational strategies</i></p>	
<p>1.3.3.1. Determine causes and countermeasures of motion sickness (1)</p>	<p>K</p>
<p>1.3.3.2. Determine causes and countermeasures of acceleration threats in flight (1)</p>	<p>K</p>
<p>1.3.3.3. Determine causes, and countermeasures of spatial disorientation threats in flight (2)</p>	<p>K</p>
<p>1.3.3.4. Identify principles and characteristics of aircraft emergency escape or crash (3)</p>	<p>K</p>
<p>1.3.3.5. Perform fitting of the aviator mask and helmet (4)</p>	<p>P</p>
<p>2. AIRCREW PHYSIOLOGICAL TRAINING</p>	
<p>2.1. ALTITUDE TRAINING</p> <p>Description: The process of preparing aircrew and non-crew members to operate at high altitudes in a variety of flight conditions across the full spectrum of aviation operations.</p>	
<p>2.1.1. Altitude Training (Basic) Required Behaviors:</p> <ol style="list-style-type: none"> 1. Verifies accurate altitude exposure execution IAW appropriate regulations and instructions 2. Provides instructional input to crewmember(s) to mitigate human factors threats at high altitudes, and facilitates safe flight operations as it relates to the physiological effects of altitude (e.g. hypoxia, decompression sickness, and accelerated fatigue) <p>Criteria: <i>Reach of Influence: Individuals</i></p>	
<p>2.1.1.1. Identify the various gas laws and their physiological significance (1)</p>	<p>K</p>

2.1.1.2. Complete Non-Pipeline Acceleration Training (NPAT) Course (1)	P
2.1.1.3. Explain the physiological processes of human respiration and circulation (2)	K
2.1.1.4. Identify chamber crew duties and responsibilities (2)	K
2.1.2. Altitude Training (Intermediate) Required Behaviors: 1. Leads high-altitude instruction and advisory efforts to align training programs and elevate operational safety through physiological expertise 2. Verifies student readiness for high altitude flight and high altitude parachutist procedures to enable successful execution of HAAMS (e.g., IAW 11-409) 3. Aligns OJT programs with altitude training curricula, reinforcing critical learning objectives tailored to mission requirements and individual needs Criteria: <i>Reach of Influence: Unit/Group</i>	
2.1.2.1. Demonstrate operation of the altitude chamber and subsystems (1)	P
2.1.2.2. Describe characteristics of the earth's atmosphere (1)	K
2.1.2.3. Identify the physiological hazards and mitigations associated with High Altitude Intelligence Surveillance and Reconnaissance (HAISR) missions (1)	K
2.1.2.4. Complete Initial Hypobaric Chamber Training (2)	P
2.1.2.5. Complete a Refresher Hypobaric Chamber Profile (2)	P
2.1.2.6. Complete Reduced Oxygen Breathing Device Profile (2)	P
2.1.2.7. Recognize and respond to altitude chamber reactions (2)	P
2.1.2.8. Recognize and respond to altitude chamber emergencies (2)	P
2.1.2.9. Identify the physiological hazards and mitigations associated with High Altitude Airdrop Mission Support (HAAMS) missions (2)	K
2.1.2.10. Complete Basic Life Support (BLS-CPR) Training (3)	P
2.1.2.11. Determine the causes, symptoms, and treatment of DCS (3)	K
2.1.2.12. Determine the causes, symptoms, and treatment of trapped gas disorders (3)	K

2.1.2.13. Determine the causes, symptoms, and treatment of hyperventilation (3)	K
2.1.2.14. Determine the causes, symptoms, and treatment of hypoxia (3)	K
<p>2.2. INSTRUCTIONAL SYSTEMS DESIGN (ISD)</p> <p>Description: Developing, implementing, and managing instructional systems that meet the learning needs of members within an organization.</p>	
<p>2.2.1. Instructional Systems Design (Basic)</p> <p>Required Behaviors:</p> <p>1. Delivers standardized AP instruction by utilizing approved lesson plans, presentations, and instructor guides</p> <p>2. Identifies and reports deficiencies in instructional content to ensure accuracy, currency, and instructional effectiveness</p> <p><i>Criteria: Depth of Knowledge: Established practice with some workplace elements</i></p>	
2.2.1.1. Present instruction on Physiological Effects of Altitude IAW AP standardized curriculum (1)	P
2.2.1.2. Present instruction on Noise & Vibration IAW AP standardized curriculum (1)	P
2.2.1.3. Present instruction on Performance Threats IAW AP standardized curriculum (1)	P
2.2.1.4. Execute certification of Refresher Tracks A, T, & E. <i>Reference:</i> AETC Bookstore. (1)	P
<p>2.3. NON-RATED AIRCREW</p> <p>Description: The role of essential personnel who perform mission-critical flight duties without an aeronautical rating.</p>	
<p>2.3.1. Non-Rated Aircrew (Basic)</p> <p>Required Behaviors:</p> <p>1. Maintains universally qualified non-rated aircrew requirements IAW 11-401/403/2-MDS</p> <p><i>Criteria: Depth of Knowledge: Established practice with some workplace elements</i></p>	
2.3.1.1. Complete a diagnostic AF Physical Fitness Assessment (1)	P

2.3.1.2. Understand X-Prefix Requirements (AFMAN11-2PHYSV1) (1)	K
<p>2.4. SAFETY</p> <p>Description: The process of promoting aircrew safety by training personnel to recognize and manage in-flight physiological risks, reinforcing emergency procedures and operational readiness.</p>	
<p>2.4.1. Safety (Basic) Required Behaviors:</p> <p>1. Engages with Installation Safety office/augment team as needed</p> <p><i>Criteria: Depth of Knowledge: Established practice with some workplace elements</i></p>	
2.4.1.1. Identify principles and characteristics of USAF safety programs (1)	K
<p>3. ORGANIZATIONAL DEVELOPMENT</p>	
<p>3.1. ORGANIZATIONAL AWARENESS</p> <p>Description: The knowledge of an organization's key dynamics to ensure strategic alignment with mission objectives.</p>	
<p>3.1.1. Organizational Awareness (Basic) Required Behaviors:</p> <p>1. Explains organization's mission, vision & priorities to align AP w/operational needs 2. Applies regulatory guidance and navigates unit structure to support AP operations</p> <p><i>Criteria: Depth of Knowledge: Established practice with some workplace elements</i></p>	
3.1.1.1. Identify purpose, composition, and function of the Aerospace Physiology Enterprise (1)	K

3.1.1.2. Demonstrate an understanding of Aerospace Physiology program manuals (AFMANs 11-202 v1, v2, & v3, 11-210, 11-290, 11-301, 11-403, 11-404, 11-409, 38-102 and DAFMAN 11-401) to instructional and operational decision-making (2)	K
3.1.1.3. Demonstrate an understanding of Aerospace Physiology program pamphlets (AFPAM 11-417, 419) to instructional and operational decision-making (2)	K
3.1.1.4. Explain local APTU Operating Instructions, local MDS AFMAN 11-202 vols 1, 2, & 3 and DAFPD 10-9 (2)	K
3.1.1.5. Be familiar with AFI 65-503, 16-1301, DAFI 91-204, DAFI 91-202, DAFI 90-802, AFI 48-101 (2)	K
3.1.1.6. Define Wing & Flying squadron safety meetings purpose and rationale that we are ready to present when able (attend one if possible). (2)	K
3.1.1.7. Define AP roles and responsibilities in Aircraft Flight Equipment (AFE), Wing Safety Office (WSO), Comprehensive Readiness Aircrew Flying Training (CRAFT), Optimizing the Human Weapon System (OHWS), and Mishap Response. (1)	K
3.1.1.8. Identify Instrument Refresher purpose. (2)	K
3.1.1.9. Understand how to Gain access to Air Force Safety Automated System (AFSAS), AETC Bookstore, AP SharePoint. (1)	K