

# AETC Syllabus AM-251, Flying Training, USAFA Basic Soaring

January 2014

This is the syllabus used by the Air Force Academy for glider training. In this version Solo occurs by the 14<sup>th</sup> flight. There have been some changes, increased use of the Mach 0.1 Condor simulator, and Solo is expected by the 12<sup>th</sup> flight.

The other reference used by Cadets is the Basic Soaring Manual, it contains all the instruction on ‘how to fly’...

*The Air Force emphasis at USAFA and for all flight training is that it be accomplished with consistent quality, safely, quickly and with minimum use of resources. It may seem counter-intuitive, but the strict tracking and ‘paperwork’, allows this to be done with high satisfaction for both instructors and students.*

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**NOTE:** As you review, you may be surprised to see no mention of ‘soaring’ or ‘thermallng.’ I was a little confused until a senior officer explained: **First we teach how to fly a ‘glider’, they solo, and then we teach how to fly a ‘sailplane.’** Recall the old combat gliders: towed into position, let go, glide, and make a survivable landing. Learning to glide teaches a lot of fundamental skills and provides a quick path to a *confidence-boosting-enthusiasm-increasing* solo.

**NOTE:** When viewing the PDF, you can click on the entries below to jump to that section of the manual.

## Table of Contents

Figure 1: Instructor & Cadet Responsibilities.....	7
Figure 2: Grading Procedures.....	10
Figure 3: Training / Maneuver Standards.....	12
Figure 4: Academic Training (Ground School).....	16
Figure 5: Flying Training.....	17
Figure 6: Grades Required for Solo.....	21
Figure 7: Course progression / prerequisites.....	22

Flying Training

## Basic Soaring

January 2014



Air Education and Training Command



# Contents

<i>Chapter</i>		<i>Page</i>
<b>1 — Course Description</b>	.....	1
<b>2 — Course Administration</b>	.....	2
<b>Section A — Syllabus Management</b>	.....	2
1. Syllabus Interpretation	.....	2
2. Syllabus Waiver	.....	2
3. Syllabus Deviation and Omitted Training	.....	2
4. Incomplete Training	.....	2
<b>Section B — Training Management</b>	.....	2
1. Fuel Conservation	.....	2
2. Syllabus Use	.....	2
3. Squadron Commander Responsibilities	.....	2
4. AM-251 Training Program Manager Responsibilities	.....	3
5. Instructor Responsibilities	.....	3
6. Cadet Responsibilities	.....	3
7. Training Requirements and Restrictions	.....	4
8. Incomplete Sorties	.....	4
9. Additional Training Sorties or Break-In Training Sorties	.....	4
10. Airsickness / Manifestation of Apprehension (MOA) Management	.....	4
11. G-Induced Loss of Consciousness (G-LOC)	.....	5
12. Flying Safety	.....	5
13. Daily Mass Briefings	.....	5
14. Emergency Procedures Training	.....	5
15. Boldface / Operations Limits	.....	5
16. General Knowledge	.....	5
17. Briefing and Debriefing Requirements	.....	5
18. Cockpit / Crew Resource Management (CRM)	.....	5
19. Commander's Awareness Program	.....	5
20. Training Documentation Management	.....	6
<b>Section C — Grading Procedures</b>	.....	6
1. Maneuver Item File (MIF)	.....	6
2. Assessing Cadet Performance	.....	6
3. Absolute Grading Scale	.....	6
4. Relative Grading Scale	.....	7
5. Solo Grading Procedures	.....	7
6. Regression Rules	.....	7
7. Unsatisfactory Sortie Restrictions	.....	7



8. Assessing Potential to Serve as Cadet IP.....	7
<b>Section D — Course Training Standards</b> .....	7
1. Purpose.....	7
2. Performance.....	8
3. Testing (minimum sorties).....	8
4. General Proficiency Standards.....	8
5. Tasks.....	8
<b>3 — Academic Training</b> .....	12
<b>4 — Flying Training</b> .....	13
<b>Section A — Sailplane Training</b> .....	13
1. General.....	13
2. Prerequisites.....	13
3. Ground Briefing.....	13
4. Sortie Restrictions.....	13
5. Special Syllabus Items.....	13
<b>Section B — Maneuver Item File</b> .....	17
<b>5 — General Instructions</b> .....	18
<b>Section A — Prerequisites</b> .....	18
<b>Section B — Bibliography</b> .....	18
<b>Section C — Glossary</b> .....	19

### Summary of Changes

- Updated course objective.
- Specified course as a summer only offering.
- Provided course authorization and updated institutional competencies.
- Updated course completion criteria.
- Added text on omitted training, incomplete training, and fuel conservation.
- Clarified SQ/CC and AM-251 Training Program Manager responsibilities.
- Updated rules on incomplete sorties.
- Added information on Commanders' Awareness Program.
- Added information on Solo Grading Procedures, Regression Rules, and Unsatisfactory Sortie Restrictions.
- Identified Academic Training medium.



## Chapter 1

### Course Description

1. **Title** — Basic Soaring.
2. **Identifier** — AM-251.
3. **Objective**
  - a. Challenge and motivate cadet to pursue additional fixed-wing airmanship experience via solo flight opportunity.
  - b. Identify and motivate cadets who possess required aptitude and academic ability to pursue Soaring Instructor Pilot upgrade.
4. **USAFA Credit Hours** — Refer to the USAFA Curriculum Handbook.
5. **Cadet Contact Times** — Total airfield cadet contact time is 105 hours.
6. **USAFA Leadership Credit** — AM-251 does not fulfill a USAFA Leadership Credit requirement.
7. **Location** — All training takes place at the USAFA airfield.
8. **Duration** — This course is offered in the Summer only (June – August). There are three offerings, each of which is three-weeks long and comprised of 15 lessons.
9. **Entry Prerequisites** — Cadets must complete medical clearance. Refer to AFI 48-123, Vol. 3, *Medical Examinations and Standards Volume 3 – Flying and Special Operational Duty*, chapter 6, paragraph 48.9.2. USAFA Form 1042 with “cleared to solo” option specified either to solo or not.
10. **Authorization** — AFI 36-3501, *Air Force Academy Operations*, the USAF Academy is authorized to conduct soaring in support of the cadet development mission.
11. **USAF Institutional Competencies** — AM-251 helps cadets to fulfill several USAF Institutional Competencies. Learning Outcomes specified in AFI 36-2014, *Commissioning Education Program*.
12. **Cadet Enrollment** — Cadets are normally enrolled in AM-251 during the summer of their third class year. Cadets should reference the Course Curriculum Handbook regarding enrollment.
13. **Course Completion** — A cadet is considered course complete by the respective organizations, under any of the following conditions:
  - a. USAFA / AETC
    - (1) Complete 14 sorties.
    - (2) Complete solo sortie.
14. **Status Upon Graduation**
  - a. Cadets who complete AM-251 IAW paragraph 13 are eligible for AM-461. If a cadet doesn't meet 13 but otherwise is recommended for AM-461, seek an entry waiver to AM-461.
  - b. Cadet Senior Flight Wings — Complete solo flight (score  $\geq 85\%$  on Pre-Solo quiz and no unexcused absences).

15. Ground Training	<i>Hours</i>
Ground Training	6.4
<i>Ground Training Total</i>	6.4

16. Flying Training	<i>Sorties</i>		<i>Hours</i>	
	<i>Dual</i>	<i>Solo</i>	<i>Dual</i>	<i>Solo</i>
Pre-Solo / Solo	13	1	3.9	0.3
<i>Total Sorties / Flight Hours</i>	13	1	3.9	0.3



## Chapter 2

### Course Administration

#### Section A — Syllabus Management

##### 1. Syllabus Interpretation

This syllabus is directive and must be followed as written. If no clear syllabus guidance exists, resolve the situation using the appropriate chain of command. If the logical course of action appears to conflict with other directives, 306 FTG/CD should contact the OPR, HQ AETC/A3FP, at DSN 487-9646.

##### 2. Syllabus Waiver

An approved syllabus waiver is required for any *planned* exception to the syllabus caused by special or unusual circumstances. Permanent or blanket waivers are *not* authorized, but should be suggested as syllabus changes. Do not accomplish or omit any training requested in a waiver until notification of approval. Maintain a permanent record of all approved waivers on the cadets' grade cards. Items specified by AFI or AETCI can only be waived by the waiver authority specified in the instruction. Submit waiver requests electronically or in writing, on AETC Form 6, *Waiver Request*, to the following approval authorities:

- a. Syllabus waivers: through AETC/A3FP to AETC/A3F. AETC/A3F provides AETC/A3FP a copy of all waiver requests with the approval / denial outcomes annotated.
- b. Syllabus entry prerequisite waivers: through AETC/A3FP to AETC/A3F.

##### 3. Syllabus Deviation and Omitted Training

A syllabus deviation is any unplanned variation from syllabus requirements such as prerequisite flow, turn times, and failure to comply with syllabus directives or MIF requirements. Document all syllabus deviations in the cadet's training folder. If a syllabus deviation results in an omission of required training, the 306 FTG/CC determines if the omitted training can be accomplished later in the syllabus flow without adversely affecting the quality of cadet training. Document 306 FTG/CC-directed corrective actions, and the accomplishment of the omitted training in the cadet's training folder. Document all syllabus deviations in the cadet's training records and report them to AETC/A3FP.

##### 4. Incomplete Training

Cadets who desire to minimize flying should complete at least two sorties one of which should be with a rated officer. A squadron supervisor must also counsel the cadet. Cadets who self-eliminate continue to perform ground duties in support of regularly scheduled AM-251 classes.

#### Section B — Training Management

##### 1. Fuel Conservation

AETC is committed to fuel conservation and maximizing training value for the command's energy resource investment without compromising safety, air discipline, or negatively affecting the quality of our flying training product. Aircrews must manage aviation fuel as a limited and costly resource. Consider fuel optimization throughout all phases of mission planning and syllabus execution. Ensure ground operations (engine start times/taxi routing) and flight profiles are optimized for efficient fuel use. Adhere closely to syllabus average mission durations (AMD). Do not exceed these flight times except for extenuating circumstances or to meet training objectives. Guidance is applicable to Tow Pilots.

##### 2. Syllabus Use

This syllabus outlines the desired sortie flow and specific requirements for AM-251 training. Qualified sailplane IPs conduct all ground and flying training.

##### 3. Squadron Commander Responsibilities

- a. Supervise and monitor student training IAW AETCI 36-2205, Vol. 1, *Formal Flying Training Administration and Management* and AETCI 36-2205, Vol. 2, *Formal Flying Training Administration and Management—Airmanship and Airmanship Support Training*.
- b. Conduct safe and efficient training.
- c. Execute syllabus correctly.
- d. Execute the Commander's Awareness Program.



#### 4. AM-251 Training Program Manager Responsibilities

- a. Properly manage cadet in-processing.
- b. Execute syllabus correctly and conduct syllabus directed training.
- c. Advise supervisors on individual cadet performance.
- d. Supervise and monitor overall and day-to-day cadet training.
- e. Provide discipline, physical and mental well-being, and general welfare of cadets.
- f. Maintain cadet training records in accordance with AETCI 36-2205, Vol. 1 and Vol. 2, local guidance, and this syllabus.
- g. Brief cadet leaders on the scope and limits of their responsibilities.
- h. Ensure cadet flight commanders and instructors distribute training equally so each cadet gets at least two sailplane sorties during the first few class meetings. If cadets can't attain 14 sorties in the allotted time (because of weather or other factors), tailor sorties for maximum motivation, e.g. every other flight as a pattern sortie.
- i. At the completion of training, ensure information on cadet training is available to the USAFA Airmanship Program Manager. Provide summary on individual training circumstances preventing solo (i.e. weather, motivation, aptitude, etc.).
- j. Convene and chair a formal course review upon completion of each scheduled offering.

#### 5. Instructor Responsibilities

- a. Execute syllabus correctly.
- b. Emphasize safety, correct emergency procedures, air discipline and sound judgment during training.
- c. Conduct ground training. The instructor ensures that the cadet has received adequate ground training for all aspects of the mission to be flown and that all prerequisites are met.
- d. Brief each syllabus event IAW AFI 11-2SAILPLANE, Vol. 3, *Sailplane Operations Procedures*. Brief specific training objectives for each event.
- e. Ensure the cadet is familiar with mission profiles and local procedures. IPs should expose cadets to a wide variety of profiles and procedures during flight training.
- f. Comply with and accurately accomplish all flight planning and syllabus training requirements.
- g. Following sortie, assess and grade all accomplished MIF. Discuss ground training items. Assign study areas to prepare for the next event. IPs may fly two consecutive sorties with the same cadet before filling out the grade card, provided highlights from the first sortie are verbally debriefed before the second sortie.
- h. Using the cadet chain of command, keep the AM-251 Training Program Manager informed of any deficiency (grounding, performance, etc.) that could affect a cadet's training progress. Document all unusual occurrences on a cadet's grade card.
- i. In those instances when a cadet meets the prerequisites to solo, the instructor ensures the cadet meets or exceeds MIF and reviews the grade card to ensure all requirements are met, all briefings completed, and required signatures annotated. The instructor then gains 94 FTS/CC, 94 FTS/DO, or Ops Sup approval prior to the cadet's solo sortie.

#### 6. Cadet Responsibilities

- a. Cadets are expected to attend all training. If circumstances preclude a cadet's attendance, the cadet notifies the Cadet Flight/CC or AM-251 Program Manager and requests to be excused prior to the start of the next lesson. Annotate excusal on the cadet's grade card.
- b. Cadets are responsible for accomplishing all assigned training:
  - (1) Cadets prepare for their flights by studying the *Basic Soaring* manual. Set aside 2 hours for study and preparation before each lesson.
  - (2) Plan aircraft training sorties with their IP to meet all training objectives.

Figure 1: Instructor & Cadet Responsibilities



- (3) Be prepared for the planned daily flying activities.
- (4) Ensure the aircraft is preflighted and inspected for the assigned sortie.
- (5) Safely operate aircraft to accomplish the mission using sound judgment and airmanship.
- (6) Accomplish required checklists.
- (7) Plan and execute flight maneuvers.
- (8) Achieve MIF for each maneuver.
- (9) Accomplish all special syllabus requirements.
- (10) Achieve score of 100% on **Boldface** and 85% on the Pre-Solo Quiz.

#### 7. Training Requirements and Restrictions

- a. *Maneuver Accomplishment* — Instructors demonstrate maneuvers prior to cadets practicing them. Exceptions are allowed only when a cadet's previous training provides adequate and direct transfer to the maneuver being performed. Cadets may practice or be demonstrated only those maneuvers listed in the MIF.
- b. *Maneuver Continuity* — Each maneuver (except special syllabus items) should be accomplished at least once every four sorties. (*Exception:* Area maneuvers should be accomplished every four area sorties).
- c. *Continuity Following Unsatisfactory Sorties* — A cadet demonstrating overall unsatisfactory performance on a flight is progressed to the next training flight. Document overall grades of "U" or "F" on the cadet's grade card. Notify the cadet's AOC of sustained unsatisfactory performance. Advise the AOC if the cadet is placed in CAP. Cadets must meet standards IAW USAFAI 36-155, *Cadet Extracurricular Activities Program*, para 11.2.
- d. *Instructor Continuity* — The Cadet Flight Commander designates a primary and an alternate IP for each cadet. Cadets should fly with their primary assigned and alternate IP to the maximum extent possible. Supervisory sorties are those flown with the Cadet Squadron Commander, Cadet Flight Commander, Cadet Flight NCO, Cadet Stan/Eval IPs, rated civilians or staff officers.
- e. *Cadet Continuity* — Fly cadets as often as possible but do not exceed the restrictions in chapter 4, paragraph 4.
- f. *Training Progress* — Cadet performance is individually assessed against attainment of the CTS. Cadet must meet all MIF on the sortie prior to the solo sortie. If the cadet does not solo, continue to assess cadet performance against CTS for screening purposes.

#### 8. Incomplete Sorties

The AM-251 Program Manager, 94 FTS/DO, or 94 FTS/CC approves grading sorties as incomplete.

#### 9. Additional Training or Break-in-Training Sorties

Not authorized.

#### 10. Airsickness / Manifestation of Apprehension (MOA) Management

- a. (ref: AFI 48-123, *Medical Examinations and Standards*). IAW AFI 48-123, document all instances of active airsickness (vomiting), significant passive airsickness (does not include vomiting but is indicated whenever the IP must take control of the aircraft, a significant deviation in the mission profile is required, or flying safety is jeopardized), and MOA (defined as a state of psychological anxiety, apprehension, and / or physical impairment). A cadet may exhibit MOA through tension, anxiety, loss of appetite, sleeplessness, vague medical complaints, or airsickness.
- b. Document all instances of active and significant passive airsickness and MOA on the back of the grade card. Refer cadets who experience airsickness to the flight surgeon for examination, counseling, and appropriate treatment. The IP must document the lesson number, flight conditions, phase of flight, duration of flight, the cadet's behavior, and any relevant past history on AF Form 4293 (Medical Overprint). The cadet must take this form to the flight surgeon for treatment and documentation. When the cadet returns from these referrals with the completed AF Form 4293, the IP makes a write up on the back of the grade card indicating the requirements were met and that the cadet is cleared for further flights. Maintain the completed AF Form 4293 in the cadet's training folder.



- c. Cadets who become airsick are graded "U" on the sortie. Following a sortie graded "U" for airsickness; the cadet must fly a dual sortie.
- d. If a cadet becomes airsick (active or passive) on the pre-solo sortie, fly another dual sortie before going solo.

#### **11. G-Induced Loss of Consciousness (G-LOC)**

Refer to AETCI 36-2205, Vol. 1 and Vol. 2. If G-LOC occurs, grade the sortie "U" overall for safety of flight.

#### **12. Flying Safety**

Emphasize flying safety, risk management, emergency procedures, proper air discipline, and good judgment throughout all training. Discuss topics relating to safety that promote good judgment and safe practices.

#### **13. Daily Mass Briefings**

Before each flying period, cadets must attend a mass briefing to include current and forecast weather, operational notes, simulated emergency procedures (EPs) and special emphasis items. Cadets not present for the mass briefing receive a briefing from the Ops Sup prior to flying.

#### **14. Emergency Procedures Training**

Present emergency / general knowledge situations at each mass briefing. Correct, on the spot, unsatisfactory performance by a cadet (as judged by the IP giving the EP briefing). Conduct additional ground training prior to flying. Document this additional ground training as well as satisfactory or unsatisfactory EP performance on the back of the grade card. Ensure all cadets are selected for EP training on an equal basis. Conduct EP training on all aircraft sorties. Brief simulated EPs if they are to be performed in the aircraft during the mission.

#### **15. Boldface / Operations Limits**

Administer Boldface and Operations Limits quizzes as required.

#### **16. General Knowledge**

Cadets, who demonstrate an unsatisfactory level of knowledge, for point in training, during formal flight briefings, emergency procedures briefings, or quizzes, are prohibited from performing syllabus sorties until demonstrating satisfactory knowledge for point in training.

#### **17. Briefing and Debriefing Requirements**

Briefings set the tone and allow the instructor to assess the cadet's readiness to fly the mission. Instructors thoroughly brief specific objectives, techniques, training rules, and procedures to be employed in accomplishing these objectives before each sortie. Instructors debrief the sortie to measure the success of accomplishing training objectives and identify the root cause in each deficient area. Brief all aircrew members IAW the requirements listed in AFI 11-2Sailplane, Vol. 3.

#### **18. Cockpit / Crew Resource Management (CRM)**

Integrate CRM skills into flight briefings and debriefings IAW AFI 11-290, *Cockpit / Crew Resource Management Training Program* and the AETC Supplement. Grade the following CRM items IAW AFI 11-290, AETC Sup 1:

- a. Mission Planning / Briefing / Debriefing (This is not a MIF item, but IP complies with AFI).
- b. Communication.
- c. Crew Coordination.
- d. Risk Management / Decision-Making.
- e. Situational Awareness.
- f. Task Management.

#### **19. Commander's Awareness Program**

CAP is a short-term program where the commander and supervisors closely monitor a cadet's ability to complete training. Cadets may be placed into CAP when they demonstrate a potential inability to meet MIF, fail to uphold military standards, or have personal issues that would require increased supervision. Notify the AM-251 Training Program Manager of CAP placement. Document the cadet's placement into CAP in the cadet's training records. Reference AETCI 36-2205, Vol. 2 for additional guidance.

- a. The 94 FTS/CC determines training activity restrictions and instructor continuity requirements on a case-by-case basis. CAP administration may be delegated to the 94 FTS/DO, but the commander maintains overall authority and responsibility.



- b. The AM-251 Training Program Manager briefs the commander weekly on the cadet's status and progress.
- c. Tailor training to address the cadet's particular situation within the syllabus limits. Closely monitor instructor continuity. Do not compromise proficiency standards to permit CAP cadet to progress in training. Do not exceed syllabus parameters to clear flight deficiencies.
- d. The 94 FTS/CC removes a cadet from CAP when the cause for entry into CAP is resolved.

## 20. Training Documentation Management

- a. *General*— Maintain grade cards and training folders IAW AFMAN 33-363, *Management of Records*, and dispose of IAW the Air Force Records Disposition Schedule (RDS), located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfmand>. File according to the cadet's AM-251 block following class graduation.
- b. *Required Documentation* — All training record entries will be factual, objective, concise, legible, dated and signed (or initialed) by the writer. Do not use "white-out." Accomplish all entries in ink. Make entries according to the following chart:

Entry	Grade Card	AF Form 4293	Training Folder
Absences / tardiness / excusals	X <sup>2</sup>		
Unsatisfactory performance on <b>Boldface</b> (below 100%) / pre-solo test (below 85%)	X		
Counseling	X	X	
Injuries		X	
Removal from training			AF Form 126
Syllabus deviations	X		
Syllabus waivers	X		File Waiver
Unsafe acts or performance	X		
Unsatisfactory performance	X		
Unusual occurrences	X		
Solo approval	X		
Airsickness / MOA	See Chapter 2, Section B, Paragraph 10		
G-LOC	See Chapter 2, Section B, Paragraph 11		
Unsatisfactory performance during stand-up EPs	X		
Incomplete sorties	X		
Additional ground training for a failed stand-up EP	X		

Note — If the back of the cadet's grade card becomes full, continue write-ups on an AF Form 4293 and attach it to the back of the cadet's grade card.

## Section C — Grading Procedures

### 1. Maneuver Item File (MIF)

Cadets must meet MIF to be eligible to solo (last attempt of each maneuver prior to solo must be to MIF or better). AM-251 cadets do not attempt maneuvers with MIF level NG, but IPs will demonstrate those designated as a NG+.

### 2. Assessing Cadet Performance

There are two methods of grading cadet performance; an absolute grading scale for rating individual maneuver items, and a relative grading scale for assessing overall sortie performance. As soon as practical, the IP grades the cadet using the grading scales listed below.

### 3. Absolute Grading Scale

Instructors judge the cadet's maneuver performance against the course training standards (CTS) in this syllabus. Grade maneuvers on the cadet's characteristic performance. This grade does not consider the cadet's type and amount of training.

Figure 2: Grading Procedures



<i>Proficiency Grade (MIF Level)</i>	<i>Symbol</i>	<i>Description</i>
Briefed	B	The IP briefed the maneuver, but it was not accomplished in flight.
Check Mark	✓	The cadet accomplished a maneuver the instructor did not observe.
No Grade	NG	The instructor demonstrates the maneuver, but the cadet does not practice it.
Unsatisfactory	U	The cadet is unsafe or lacks sufficient knowledge, skill, or ability to perform the operation, maneuver, or task.
Fair	F	The cadet performs the operation, maneuver, or task safely, but has limited proficiency.
Good	G	The cadet performs the operation, maneuver, or task satisfactorily. Deviations are recognized and corrected in a timely manner. Characteristic performance meets the course training standard.
Excellent	E	The cadet performs the operation, maneuver, or task correctly, efficiently, and skillfully. Minor deviations can occur but do not detract from overall performance. Characteristic performance exceeds the course training standard.

#### 4. Relative Grading Scale

The IP uses the relative grading criteria to assess overall sortie performance with grades of Excellent (E), Good (G), Fair (F) or Unsatisfactory (U). The instructor determines the overall grade for a lesson by comparing the cadet's performance relative to expected cadet progress for that level of training.

- a. Good (G) is the sustained minimum overall acceptable grade.
- b. Fair (F) is substandard and indicates the need to closely monitor the cadet's progress.
- c. Cadets are expected to progress as they advance in training. Cadets may receive grades of "F" or "U" on individual maneuvers new to them and still receive an "E" for overall sortie performance.

#### 5. Solo Grading Procedures

Grade solo sorties "NG" or "U" overall. Mission planning, briefing / debriefing, ground operations, emergency procedures, general knowledge, and publications are the ONLY individual items graded with "U", "F", or "G". All other individual items are graded with "✓" or "U". Grade "✓" for maneuvers accomplished but not observed. If pre-solo is completed and solo is approved but not flown due to extenuating circumstances (weather, maintenance, etc.), pre-solo/solo event may be considered incomplete and reaccomplished only if the pre-solo is the student's 13th sortie. Document on the AF Form 4293 and obtain approval IAW with Chapter 2, Section B, Paragraph 8.

#### 6. Regression Rules

Regression is defined as failing to maintain MIF on a maneuver once MIF has been achieved (i.e., G to F or U). Regression to U requires an overall sortie grade of U. Regression to F is acceptable, but must be brought back up to G before the end of the phase.

#### 7. Unsatisfactory Sortie Restrictions

Following a sortie graded U overall, a cadet progresses to subsequent lessons until the end of the phase. If a cadet fails to achieve MIF standards by the end of the phase, grade the sortie overall U and refer to paragraph 8 below.

#### 8. Assessing Potential to Serve as Cadet IP

Cadet performance must be objectively assessed on each sortie. Cadets must meet the MIF listed in Chapter 4 for each maneuver prior to the 14th sortie to achieve an overall course assessment of "Excellent or Good." If cadets do not meet MIF, complete 14 sorties, or solo they are assessed an overall rating of "Pass-Course." Performance during AM-251 determines a cadet's suitability and eligibility for AM-461 and cadet IP duty. The Program Manager in conjunction with Cadet SQ/CC and DO review cadet grade cards at the end of each class and designate AM-251 cadets eligible for AM-461.

### Section D — Course Training Standards

#### 1. Purpose

These standards outline the general tasks required of graduates of this syllabus. Accomplish all tasks as specified.



## 2. Performance

IPs measure performance against the CTS. The minimum required proficiency to complete this course with an assessment of "Excellent" or "Good" is specified in the MIF table (see Chapter 4, Section B) for flight maneuvers, completion of ground training, and meeting minimum testing scores.

## 3. Testing (minimum scores)

- a. Written exams: 85%.
- b. **Boldface** (written or oral): 100%.

## 4. General Proficiency Standards

- a. Course training standards equate directly to a grading scale of "Good."
- b. Accomplish training standards for all maneuvers in conjunction with good safety practices (i.e. clearing, situational awareness, etc.). Effective clearing is an integral part of all maneuvers.
- c. Aircraft control must be smooth and positive.
- d. Momentary deviations are acceptable if corrections are timely and flight safety is not compromised. Consider thermal effects and other weather conditions when assigning grades. However, exceeding aircraft tolerances, even momentarily, is unacceptable.
- e. Inflight checks / checklist usage is defined as initiating and completing all appropriate checklist items for all applicable normal or simulated / actual emergency procedures throughout the mission in a timely and coordinated manner.
- f. Procedural knowledge must be in accordance with applicable directives and allow the sortie to be accomplished effectively.
- g. Unless otherwise noted, all area maneuvers begin at approximately the no-wind pattern pitch picture.
- h. A control input being listed as primary refers to its effectiveness for a given maneuver. It does not direct that the primary control be used before the secondary control. The primary control can and often should be used simultaneously with the secondary control.

## 5. Tasks

The following tables define course training standards for individual maneuvers. Unless otherwise noted the condition for all training is Day / VMC:

<i>Performance</i>	<i>Standards</i>
1. Mission Planning	Plan aircraft training sorties with IPs, ensuring all training objectives are met.
2. Ground Operations	Accurately determine readiness of aircraft for flight. Perform all pre-takeoff and post-landing checks in accordance with the flight manual and applicable directives. Ground-handle the aircraft properly.
3. Takeoff	Maintain smooth aircraft control behind the tow plane ( $\pm 10$ feet and within the confines of the runway) throughout takeoff. Establish proper pitch attitude allowing the aircraft to become airborne at approximately liftoff speed. Apply proper crab after takeoff to remain directly behind the towplane. Once the towplane is airborne, transition smoothly and timely to the standard tow position.
4. Aerotow Straight	Use appropriate control inputs to remain coordinated in the appropriate aerotow position.
5. Aerotow Turns	Use appropriate control inputs to roll in, maintain, and roll out of turns in the standard aerotow position. Fly the same arc as the tow plane and remain coordinated throughout the turn.
6. Slack Line	Recognize a slack line condition and correct without entering into a significant secondary slack line. Minimize deviation below the standard aerotow position. Return to the standard aerotow position in a timely manner. ( <i>Note</i> — Cadets are not required, nor graded on, slack line setup.)

Figure 3: Training / Maneuver Standards



<i>Performance</i>	<i>Standards</i>
7. Release	Properly clear for both aircraft, release, and make a coordinated right-hand turn (minimum 90°) away from the towplane for area tows or a coordinated right lane change for pattern tows. Release in the proper location and aerotow position and establish a pattern airspeed pitch picture.
8. Slow Flight	Determine and maintain 3 – 5 knots above the first aerodynamic indication of a stall in wings-level flight. Fly wings-level and shallow turns at calculated airspeed. Use sufficient rudder to remain coordinated throughout the maneuver.
9. Nose-High Stall	Raise the nose of the aircraft with sufficient airspeed to reach a wings-level 20 – 30° nose-high attitude. Continue adding backstick pressure to maintain the nose-high attitude until the aircraft fully stalls. As the nose falls (or wing drops), relax backstick pressure, roll wings level (if required) using rudder (primary) and ailerons, and recover to a safe flying airspeed without stalling the aircraft.
10. Turning Stall	Enter a shallow bank turn and hold a constant bank angle with a slightly nose-high attitude. Recover promptly at the first aerodynamic indication of a stall by relaxing backstick pressure (closing airbrakes if open). Roll wings level using rudder (primary) and ailerons. Complete the recovery to an approximate pattern airspeed pitch picture without stalling the aircraft.
11. Landing-Attitude Stall	Enter a normal wings-level landing attitude with approximately ¼ to ½ airbrakes. Recover promptly at the first aerodynamic indication of an impending stall by relaxing backstick pressure (primary) and closing airbrakes. Roll wings level (if required) using rudder (primary) and ailerons. Complete the recovery by establishing the landing attitude and maintaining safe flying airspeed without stalling the aircraft.
12. Steep Turns	Establish a stabilizing turn, using 45 – 60° of bank, maintain 70 KIAS (±10 knots). Roll out on desired point (±20°). Use sufficient rudder to remain coordinated throughout the maneuver.
13. Normal Pattern	Arrive over the entry point at 800 ft AGL (± 100 ft). Fly proper rectangular ground track for existing weather conditions so as to roll out on final no lower than 200 ft AGL. Maintain pattern airspeed (–0, +5 knots) using the pitch of the aircraft. Use airbrakes to maintain desired glidepath. Use sufficient control inputs to maintain groundtrack and aimpoint on final.
14. Grass Landing	Plan an aim point to stop at a predetermined point. Touchdown smoothly, on speed. Maintain ground track with appropriate crosswind controls. Apply airbrakes and wheel brake as necessary to smoothly stop the aircraft. Lower the nose or tail wheel to the ground (depending on CG) when elevator becomes ineffective. Come to a stop at midfield or no closer than 200 ft short of any aircraft / obstacle within one wingspan of the aircraft, whichever occurs first.
15. Hard Surface Landing	Plan an aim point to stop at a predetermined point. Touchdown smoothly, on speed. Maintain ground track with appropriate crosswind controls. Apply airbrakes and wheel brake as necessary to smoothly stop the aircraft. Lower the nose or tail wheel to the ground (depending on CG) when elevator becomes ineffective. Come to a stop at midfield or no closer than 200 ft short of any aircraft / obstacle within one wingspan of the aircraft, whichever occurs first.
16. Checklist Procedures	Correctly perform all required checklists in a timely manner. Refer to appropriate checklists for all normal and simulated emergency procedures (time and conditions permitting).
17. Clearing	Maintain constant vigilance during all phases of flight using visual and auditory information to recognize and avoid conflicting traffic. Communicate conflicting traffic to other crewmember.



<i>Performance</i>	<i>Standards</i>
18. General Aircraft Control	Demonstrate thorough knowledge of primary and secondary (trim) flight controls and use them to maneuver the aircraft properly. Maintain appropriate airspeeds for each particular phase of flight. Remain coordinated during all phases of flight (except for intentional spin prevent recoveries and slips). Initiate timely rollout to maintain a desired heading.
19. Inflight Planning / Area Orientation	Follow local area procedures regarding area boundaries, required ground tracks, and altitude restrictions for all phases of flight. Efficiently use available airspace to safely accomplish the mission.
20. Transfer of Aircraft Control	Transfer aircraft control using the appropriate physical and verbal transfer procedures. Do not "ride" or bump the controls when not flying.
21. Communication	Complete knowledge of and compliance with correct communication procedures. Effectively communicate with concise, accurate, and proper radio terminology. Maintain awareness of other radio calls and time transmissions appropriately.
22. Crew Coordination	Interact with other crewmember to recognize and correct unsafe conditions. Effectively coordinate with other crewmember throughout the mission. Contribute to the smooth and efficient operation of the aircrew.
23. Risk Management / Decision-Making	Accurately identify pertinent risks to mission. Maintain flight discipline to manage in-flight risks. Accurately identify contingencies and alternatives. Gather and crosscheck available data before deciding. Clearly state decisions and ensure they were understood.
24. Situational Awareness	Display the airmanship and ability to make timely decisions and select alternative courses of action essential to mission accomplishment. Recognize deviations and unsafe situations and take appropriate action without prompting. Recognize environmental effects on the mission and adjust accordingly. Maintain glide capability awareness and retain options for safe mission accomplishment. Never exceed capability to safely control aircraft.
25. Task Management	Correctly prioritize and manage multiple tasks based on existing and new information that assure mission success. Use other crewmember when task overloaded. Recognize when other crewmember is overloaded and assist when required.
26. Emergency Procedures	Use all available indications to analyze the situation and emergency. Apply immediate and correct response to <b>Boldface</b> emergencies and timely correct actions for non- <b>Boldface</b> emergency situations. Resolve the emergency to a logical conclusion. Effectively use checklist and inflight guide. If in flight, maintain aircraft control during performance of critical and non-critical action emergency procedures.
27. General Knowledge	Demonstrate thorough knowledge of aircraft systems, limitations, and performance characteristics as described in Basic Soaring Manual.
<i>Special Syllabus Requirements</i>	
28. *Box-the-Wash	Starting at the high-tow position, (tow wings on the horizon, slightly higher than the normal tow positions), the IP flies laterally, (tail wheel of the tow plane on the outside main tire with the tow's wings on the horizon), then down, (superimpose the tow plane's elevator on his wings for the lower limit), over, and up, to demonstrate a box around the prop wash stopping momentarily at each corner and finishing in the high-tow position. The bottom of the box passes through the low-tow position.



<i>Performance</i>	<i>Standards</i>
29. Spin Prevent	Enter from a shallow attitude (0 – 15° bank, 0 – 15° pitch). Just prior to stall, increase to full backstick pressure and apply full pro-spin rudder. After an uncontrollable wing or nose-drop and the first indication of rotation, immediately recover by simultaneously, and at the same rate, applying (with positive control movement) forward stick (to break the stall) and opposite rudder (to stop the nose track and roll wings level). Complete the recovery back to wings level without entering a secondary stall. ( <i>Note</i> — Only the IP sets up this maneuver).
30. *Spiral Dive Recovery	IP enters a steep bank turn then continues to increase bank angle and backstick pressure to enter a spiral dive. Recover promptly by relaxing backstick pressure, rolling to a bank angle less than 45° with coordinated rudder and aileron, and recovering to a normal flying attitude and airspeed.
31. Low Pattern	Arrive over the entry point at 600 ft AGL ( $\pm 100$ ft). Maneuver as required on downwind (adjust displacement), turn to base, and turn to final to accomplish a safe pattern and landing. Roll out on final no lower than 200 ft AGL. Maintain proper pattern airspeed ( $-0, +5$ knots) and glidepath. Use sufficient control inputs to maintain groundtrack and aimpoint on final.
32. Simulated Rope Break	Perform the <b>Boldface</b> and take the appropriate action to perform a safe pattern and landing considering location, altitude, and existing weather conditions.
<i>*Note</i> — Cadet Proficiency not required for Box-the-Wash or Spiral Dive Recovery.	



## Chapter 3

### Academic Training

This section outlines ground training required to complete AM-251. Medium for all lessons is Instructor Based Training (IBT).

<i>Lesson</i>	<i>Title</i>	<i>Duration</i>
<b>GT</b>	<b>Ground Training</b>	0.3
GT01	Safety	0.3
GT02	Course Administration and Policies	0.3
GT03	Cockpit / Crew Resource Management	0.3
GT04	Physiology / Valsalva	0.5
GT05	Basic Soaring Manual	0.3
GT06	Soaring Instructor Pilot Duty	0.3
GT07	Emergency Ground Egress	0.3
GT08	Aircraft Familiarization	0.3
GT09	Runway Crossing Procedures	0.3
GT10	Crosswind Takeoff	0.3
GT11	Pattern Tow Procedures and Techniques	0.3
GT12	Spin Boldface Recovery Procedure	0.3
GT13	High pattern Procedures	0.3
GT14	Radio-out Procedures and Signals	0.3
GT15	Loss of Sight of Towplane	0.3
GT16	Towplane Loss of Power	0.3
GT17	Airborne Emergency Signals	0.3
GT18	West / East Landing Procedures	0.3
GT19	Downwind Landings	0.3
GT20	<b>Boldface / Pre-solo</b>	0.5
	<i>Ground Training Total</i>	6.4

Figure 4: Academic Training (Ground School)



## Chapter 4

### Flying Training

#### Section A— Sailplane Training

##### 1. General

This section outlines flying training required to complete AM-251.

##### 2. Prerequisites

Chapter 1, Paragraph 9 and specified ground training.

##### 3. Ground Briefing

Prior to each sailplane flight, the IP briefs the cadet according to local guidance. The IP ensures the cadet thoroughly understands the following (as a minimum):

- a. Crew rest status.
- b. Flight objectives.
- c. Medical status.
- d. Transfer of aircraft control.

##### 4. Sortie Restrictions

- a. The first sortie of the day must be dual.
- b. Cadets do not exceed five sorties per day unless approved by the Ops Sup, who may approve a maximum of eight sorties per day for a cadet. Cadets do not solo after the fifth sortie of that day.
- c. The cadet may not exceed 14 sorties in AM-251. Exception: See Chapter 2, Section C, Paragraph 5.

##### 5. Special Syllabus Items

All special syllabus items must be accomplished prior to the 14th sortie. Ideally, the cadet should be graded safe (F) in aerotow, pattern, and landing prior to accomplishing rope breaks or low patterns. Spiral dive recoveries and Box-the-Wash should be demonstrated and spin prevents should be accomplished after general aircraft control is "F."

- a. *Box-the-Wash demonstration* — Demonstrated to show the effectiveness of the rudder and Wings, Altitude and Rudder (WAR) acronym.
- b. *Spin Prevent* — The IP demonstrates spin prevents before the cadet attempts the maneuver. Give special attention to G-awareness during the pullout.
- c. *Spiral dive recovery* — Demonstrated to show recovery from a spiral dive. Give special attention to G-awareness during the pullout.
- d. *Low pattern* — The IP should demonstrate a low pattern before cadet attempts the maneuver.
- e. *Rope break (near pattern altitude)* — Cadet may accomplish simulated rope break if they have previously flown a pattern tow. Otherwise, the IP must demonstrate the maneuver prior to cadet accomplishing.

Figure 5: Flying Training



<i>Unit</i>	<i>Title and Objectives</i>	<i>Medium</i>	<i>Sorties</i>	<i>Hours</i>
F101-102	<p><b>Pre-Solo</b></p> <p><i>Objective</i> — Train cadet to solo in the front seat.</p> <p><i>Performance Standards</i> — Introduce basic maneuvers and sailplane procedures. The IP demonstrates the takeoff, initial aerotow, pattern and landing on the first sortie.</p> <p><i>Sailplane Sorties:</i> F101 — F102</p> <p>a. The first two sorties should concentrate on the following:</p> <ol style="list-style-type: none"> <li>(1) Glides using pitch pictures for airspeed control.</li> <li>(2) Effects of controls and coordination.</li> <li>(3) Inflight planning and area orientation.</li> </ol> <p>b. Introduce and, time permitting, practice the following:</p> <ol style="list-style-type: none"> <li>(1) Ground operations.</li> <li>(2) Aerotow takeoff.</li> <li>(3) Aerotow straight and turning.</li> <li>(4) Release.</li> <li>(5) Glides and general aircraft control.</li> <li>(6) Normal and steep turns.</li> <li>(7) Slow flight.</li> <li>(8) Inflight planning and area orientation.</li> <li>(9) Transfer of aircraft control.</li> <li>(10) Clearing.</li> <li>(11) Checklist use.</li> <li>(12) Radio procedures.</li> <li>(13) Traffic pattern.</li> <li>(14) Landing: <ol style="list-style-type: none"> <li>(a) Airspeed and aimpoint control.</li> <li>(b) Roundout and flare to touchdown.</li> <li>(c) Rollout.</li> <li>(d) Wind analysis.</li> </ol> </li> </ol> <p><b>Note</b> — The IP may introduce additional maneuvers from the AM-251 grade card, based on cadet proficiency and / or experience.</p>	TG-16A	2	0.6



<i>Unit</i>	<i>Title and Objectives</i>	<i>Medium</i>	<i>Sorties</i>	<i>Hours</i>
F103-113	<p><b>Pre-Solo</b></p> <p><i>Objective</i> — Train cadet to solo in the front seat.</p> <p><i>Performance Standards</i> — Cadet becomes proficient in basic flying maneuvers and meets minimum safety standards to solo.</p> <p><i>Sailplane Sorties</i>: F103 — F113</p> <p>a. <i>Flying Training</i> — Tailor each sortie to address the cadet's needs. Introduce and practice the following maneuvers (in addition to those flown earlier):</p> <ol style="list-style-type: none"> <li>(1) Slack line recovery.</li> <li>(2) Stalls and recoveries.</li> <li>(3) A minimum of two pattern tows (no maximum), to give the cadet extra practice in takeoff, pattern, and landing. Annotate "A" (area tow) or "P" (pattern tow) on the front of the grade card. Fly more pattern tows as necessary for cadets who need more takeoff, pattern, and landing practice. The simulated rope break and low pattern may be accomplished during the pattern tows.</li> </ol> <p>b. <i>Pre-Solo</i> — The cadet should fly without IP intervention on the pre-solo sortie.</p> <ol style="list-style-type: none"> <li>(1) Pre-solo sortie profile — Cadet flies on the same runway heading and profile as the planned solo sortie profile.</li> <li>(2) Simulated solo landing — Land with two wingspans minimum separation from other sailplanes in the landing area. Cadet performs a simulated solo landing on the pre-solo sortie.</li> </ol>	TG-16A	11	3.3



<i>Unit</i>	<i>Title and Objectives</i>	<i>Medium</i>	<i>Sorties</i>	<i>Hours</i>
F114	<p><b>Solo</b></p> <p><i>Objective</i> — Cadet solos in sailplane.</p> <p><i>Restrictions</i> — This is a supervised solo flight. The solo sortie may not be the sixth, seventh or eighth sortie of the day.</p> <p><i>Solo Prerequisites</i></p> <ol style="list-style-type: none"> <li>a. Minimum of five total instructional sorties.</li> <li>b. Minimum of 2 pattern tows.</li> <li>c. Dual sortie on the same day utilizing the same runway heading and profile, prior to solo.</li> <li>d. All special syllabus items demonstrated or performed to MIF (as required) at least once.</li> <li>e. Cadet meets MIF on the last attempt of all required maneuvers (even if the solo flight is pattern-only).</li> <li>f. Boldface (100%) / Pre-Solo quiz (85% minimum; corrected to 100%).           <ol style="list-style-type: none"> <li>(1) A cadet who fails the Boldface / Pre-Solo quiz is grounded for that lesson. Do not fly the cadet until re-tested with a minimum passing score of 100% / 85%.</li> <li>(2) A second failure of the Pre-Solo quiz negates the solo option.</li> </ol> </li> <li>g. Ground Briefing — Accomplish the “Before Initial Solo” checklist in the Sailplane Inflight Guide (IFG).</li> <li>h. The supervising IP and solo cadet must receive a solo briefing from the Ops Sup.</li> <li>i. Grade card reviewed by IP as well as reviewed and signed by the SQ/CC, DO or Ops Sup.</li> </ol> <p><i>Solo Sortie</i> — Before any cadet solos, the cadet must meet all pre-solo requirements. Once a cadet solos, AM-251 is successfully completed.</p> <ol style="list-style-type: none"> <li>a. The cadet may only accomplish the approved solo maneuvers listed in the Sailplane Inflight Guide.</li> <li>b. During the solo flight, the IP continuously monitors the cadet during the solo sortie.</li> <li>c. Reference AFI 11-2Sailplane, Vol 3, 306 FTG Sup 1 for solo restrictions.</li> <li>d. A cadet does not fly solo on the next sortie after any airsickness episode. Reference AFI 48-123 and AETCI 36-2205 for further guidance.</li> </ol>	TG-16A	1	0.3
		<i>Totals</i>	14	4.2



### Section B— Maneuver Item File

<i>Maneuver</i>	<i>FIXX</i>
1. Mission Planning	F+
2. Ground Operations	G+
3. Takeoff	G+
4. Aerotow Straight	G+
5. Aerotow Turns	G+
6. Slack Line	F+
7. Release	F+
8. Slow Flight	F+
9. Nose-High Stall	F+
10. Turning Stall	F+
11. Landing-Attitude Stall	F+
12. Steep Turns	F+
13. Normal Pattern	F+
14. Grass Landing (if solo to grass surface)	G+
15. Hard-Surface Landing (if solo to hard surface)	G+
16. Checklist Procedures	G+
17. Clearing	G+
18. General Aircraft Control	G+
19. Inflight Planning / Area Orientation	G+
20. Transfer of Aircraft Control	F+
21. Communication	F+
22. Crew Coordination	F+
23. Risk Management / Decision-Making	F+
24. Situational Awareness	F+
25. Task Management	F+
26. Emergency Procedures	G+
27. General Knowledge	G+
<i>Special Syllabus Requirements</i>	
28. Box-the-Wash	NG+
29. Spin Prevent	F+
30. Spiral Dive Recovery	NG+
31. Low Pattern	F+
32. Simulated Rope Break	F+

#### Legend

NG — No Grade, Demonstrated Item

F — Fair

G — Good

+ — Required

Figure 6: Grades Required for Solo



## Chapter 5

### General Instructions

#### Section A — Prerequisites

Syllabus Event	Prerequisite(s)		Syllabus Event	Prerequisite(s)		Syllabus Event	Prerequisite(s)	
	1	2		1	2		1	2
<b>Ground Training</b>								
GT01	Course Entry		GT08	GT01		GT15	GT01	
GT02	GT01		GT09	GT01		GT16	GT01	
GT03	GT01		GT10	GT01		GT17	GT01	
GT04	GT01		GT11	GT01		GT18	GT01	
GT05	GT01		GT12	GT01		GT19	GT01	
GT06	GT01		GT13	GT01		GT20	GT01-19	
GT07	GT01		GT14	GT01				
<b>Aircraft</b>								
F101	GT01-09		F106	F105		F111	F110	
F102	F101		F107	F106		F112	F111	
F103	F102	GT10-13	F108	F107		F113	F112	
F104	F103	GT14-16	F109	F108		F114	F113	GT20
F105	F104	GT17-19	F110	F109				

#### Section B — Bibliography

1. Instructions, Training Manuals and Technical Orders(Available on SharePoint)	<i>Basis of Issue</i>
a. AFPD 11-2, <i>Aircrew Operations</i>	1/course
b. AFI 11-200, <i>Aircrew Training, Standardization/Evaluation, and General Operations Structure</i>	1/course
c. AFI 11-202, Vol. 1, <i>Aircrew Training</i>	1/course
d. AFI 11-2SAILPLANE, Vol. 1, <i>Sailplane Aircrew Training</i>	1/course
e. AFI 11-2SAILPLANE, Vol. 2, <i>Sailplane Aircrew Evaluation Criteria</i>	1/course
f. AFI 11-2SAILPLANE, Vol. 3, <i>Sailplane Operations Procedures</i>	1/course
g. AFI 11-290, AETC Sup 1, <i>Cockpit / Crew Resource Management Training Program</i>	1/course
h. AFI 11-402, <i>Aviation and Parachutist Service Aeronautical Ratings and Badges</i>	1/course
i. AFI 11-418, <i>Operations Supervision</i>	1/course
j. AFI 36-2014, <i>Commissioning Education Program</i>	1/course
k. AFI 36-3501 — <i>Air Force Academy Operations</i>	1/course
l. AFI 48-123, <i>Medical Examinations and Standards</i>	1/course
m. AETCI 36-2205, Vol. 1, <i>Formal Flying Training Administration and Management</i>	1/course
n. AETCI 36-2205, Vol. 2, <i>Formal Flying Training Administration and Management—USAFA</i>	1/course
o. AFMAN 33-363, <i>Management of Records</i>	1/course
p. USAFAI 36-155, <i>Cadet Extracurricular Activities Program</i>	1/course
q. 306 FTG Manual AM-251, <i>Basic Soaring</i>	1/course
r. USAFA Curriculum Handbook	1/cadet
	1/course

Figure 7: Course progression / prerequisites