



PPG 1-3 Syllabus

United States Powered Paragliding Association

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Version 2019a

Jan 3, 2019

This syllabus was designed with input from a wide variety of experienced PPG instructors. It is for new students through experienced free flyers (transitioning to power).

Thanks to the schools and instructors whose expertise helped make this thorough yet appropriate. We've tried to place emphasis where accident data suggests it's needed.

Initialing each subgroup by the student and instructor helps track that the material was covered and understood by the student. It can be both a checklist and verification.

Students should keep a log that records at least the date, location, motor, wing, inflation type, number of landings, time and maneuvers performed for each day of flying or, if more detail is desired, each individual flight.

Items not covered during flight should be covered verbally on the ground.

For a Rating To Be Issued: Please see instructions on "Instructors Only" page at USPPA.org.

Thank your for your thoroughness!

PPG 1 Syllabus: First Solo



For a rating, student and instructor must complete syllabus, initial each block, and sign below. Submit image of this page online. For a wheel-launch rating, the Wheel Launch Syllabus 1 must also be completed and ONLY that image submitted.

Instructor: I have given the training listed in this syllabus.

Student: I have received the training listed this syllabus.

_____, _____, _____
 Print Instructor Name Instructor Signature Date

_____, _____, _____
 Print Student Name Student Signature Date

This is intended to take the student through first solo under close, immediate supervision. Kiting should only be practiced with the instructor present unless the student has a clear understanding of weather factors as outlined in the PPG 2 Syllabus. A first solo student should be watched the entire flight.

It is advisable for students who have never piloted an aircraft (or parachute) to experience flight while at the controls of something before soloing a PPG. This can be through towing, tandem flight (even in another type of craft) or “bunny hill” paraglider training. Doing so reduces the chance of having an adverse reaction to a first flight under their own control.

Objective: Student should be able to kite in winds up to 12 mph, be able to launch, fly a pattern and land in a designated area with close supervision and an instructor on the radio.

Task	---Initials---		Curr
	Stud	Instr	Date

1. Before Training Begins. (0:15)

(a) PPG 1 Limitations:..... _____

- i. Student flies only with instructor approval! There is airspace where flight is prohibited due to airport proximity, populated areas, military use, presence of dignitaries, sensitive areas and other reasons. This airspace can be enacted at any time and violating it can result in severe penalties up to being forcibly brought down.
- ii. Student must not kite except under conditions or other approval of the instructor (set wind limits and times of day).
- iii. Motor should not be started until directed by instructor and only in the manner directed.

(b) Risk awareness and disclosure..... _____

- i. Some of the Risks on Ground: Falling, contact with the propeller, being hit by a flyer or his gear, being dragged, lifted, or snagged while kiting or handling the wing, other.
- ii. Some of the Risks In Flight: Wing collapse, obstacle collision, bad landing, mid-air, other.
- iii. Fill out and sign forms

(c) Payment plans and expectations. Student should know what to expect..... _____

- i. How many training sessions/days, stipulations
- ii. Cost and what’s included (sign forms as applicable).
- iii. What gear is provided, if any, and replacement of damaged gear policy.
- iv. Ratings offered and explanation of requirements. Ratings are given based on ability to demonstrate certain skills and knowledge in addition to having the requisite experience. They are in no way guaranteed.

2. PPG 1 Knowledge. (3:00) including classroom, field & Video

- (a) Inflight..... _____
 - i. Importance of landing into the wind but better to land off the wind somewhat than to land in an oscillation or bank.
 - ii. Importance and reasoning for avoiding low, downwind operations.
 - iii. Torque effects and implications: turn, motor twist, potential for riser twist, reducing power if it gets too bad.
 - iv. Brakes control of speed and temporarily affect on altitude, Throttle for height (except slow flight).
 - v. Wake turbulence: Heavy, clean and slow craft are worst. Sinks 300-500 fpm. Lasts up to 2 minutes. Will fly through wwn wake in a 360 degree turn.
 - vi. Brakes – maximum safe amounts and risks of exceeding (stall, spin).
 - vii. Recognizing wind direction.
 - viii. Throttle Use: only controls altitude and causes swing in the process.
- (b) Existence of FAR 103, restricted airspace _____
and the importance of learning it before proceeding beyond supervised solo.
- (c) Acceptable Flight Locations..... _____
Until a student has gained knowledge to read sectionals and call FSS to determine the legality of his flight, the instructor must go over areas where the student may fly.
- (d) Student should watch USPPA’s Risk & Reward and go over questions..... _____
This is best done after the student has spent time in the simulator. Replace “Hands Up, Power off” with “reduce power, reduce brakes, then steer.”
- (e) Pass PPG 1 written test, go over any missed questions..... _____

3. PPG 1 Pre-Solo Ground Handling—no motor. (4:00) This is best covered in a situation where the student can be shown and practice with the equipment.

- (a) Relevant parts of the paraglider: carabiner, Risers, Brake toggles, lines, trimmers, speedbar and other accessories as equipped..... _____
- (b) Use of ground handling harness..... _____
- (c) [FL] Dangers of kiting, risks of being dragged, cut, injured or killed..... _____
- (d) Use of safety gear. (helmet, gloves, other as utilized)..... _____
- (e) Preparing wing..... _____
 - i. Laying out properly.
 - ii. Avoiding tangles and getting knots out.
 - iii. Verifying clear lines.
 - iv. Proper layout.
- (f) Hooking in (general)..... _____
 - i. Be fully ready to handle the wing. Once clipped it is possible to get lifted or dragged.\
 - ii. Importance of verifying correct riser positioning, brake position and freedom.
- (g) [FL] Hooking in Reversed..... _____
- (h) Hooking in Forward and why proper layout is so critical for success..... _____
- (i) [FL] Inflation Reversed with dampening (6+ mph or so)..... _____

- (j) Inflation Forward (light wind, some wind, dampening)..... _____
- (k) [FL] Turning around from reversed to forward and vice-versa..... _____
- (l) [FL] Kiting forward. Importance of turning and moving forward immediately to improve control..... _____
- (m) [FL] High Winds _____
 - i. Why it's risky: getting dragged, lifted or caught in the lines.
 - ii. How wind can come up quickly and how little it takes to be risky.
 - iii. Description of rotor/mechanical turbulence and why it's worse in stronger winds. Use example of standing behind a wall and envision the glider flying into a suddenly blowing wind from the building's shadow.
 - iv. How to minimize getting dragged or lifted (for example, minimizing brake pressure).
 - v. De-powering the wing: brakes, rear risers, etc., value of grabbing fabric.
 - vi. Getting lifted or Dragged: what to do.
- (n) [FL] Using throttle. Kiting with dummy throttle (if available) and quickly getting to kill switch..... _____
- (o) [FL] Kiting with motor on but not running. Practice inflations, turning, using the throttle and the kill switch on command. _____
- (p) [FL] PLF (Parachute Landing Fall), how its done and when its appropriate: slightly bent knees, legs together, roll onto hip. In all likelihood motor will absorb much of the impact from here. Protect the spine (avoid butt landings). _____
- (q) Securing Equipment _____
 - i. Wing folding, stuffing and storage to reduce tangles.
 - ii. Motor postflight and storage.

4. PPG 1 Towing. If not used, cover (a) on risks. (0:05 – 2:00)

- (a) Risks and Their Avoidance _____
 - i. Only use certified (USPPA or USHPA) experienced tow operators.
 - ii. NEVER tow behind a vehicle without a payout winch or similar due to lockout, over stress and other problems.
- (b) Flying on Tow (if used) _____
 - i. Hookup.
 - ii. Initial Climb.
 - iii. Pilot release and signals to release.
 - iv. Emergency procedures (lockout, no release, entanglement, etc.).

5. PPG 1 Pre-Solo Motor Use and Safety. (0:45)

- (a) Preflight Inspection. _____
 - i. Lift web, Carabiners & Harness connection to frame.
 - ii. Throttle: freedom of movement & insure carburetor/linkage resets to idle.
 - iii. General condition of cage, spark plug, muffler, fuel tank and other accessories.
 - iv. Motor
 - v. Propeller/redrive/clutch & Attachment: free moving and not hitting cage or other parts.

- vi. Fuel valve on (as installed), cap secure, vent free and quantity sufficient.
- vii. Electrical components connected properly (as installed).
- viii. Personal items or attachments clear of prop.

(b) Starting & Getting in. _____

- i. Recheck throttle at idle, position and unable to increase (stepped on or squeezed accidentally).
- ii. Master on (as installed), choke/prime as required.
- iii. Preferred method: pull or electric start while on pilots back, next best is to have someone else pull start while on pilots back, next best is to position your body low enough so that full thrust will not catch the pilot off guard. Hunker down in front of while starting. Be prepared for the motor to go to full throttle. NEVER hold by cage.
- iv. Risk: From a serious injury perspective, starting the motor is the riskiest thing that a paramotor pilot does.
- v. Before getting in make sure the throttle is out of the way. Never reach back towards cage.
- vi. Runup: Clear blast area, run-up, make sure full power is available (using Tachometer), test kill switch.
- vii. Final preflight checklist (varies based on gear – see appendix).

6. PPG 1 Pre-Solo Simulator (2:00)

Do emergencies with a distraction so the student's reaction becomes automatic. Shaking the cage to simulate turbulence improves realism. This has proven to be an important step to improve student reaction in flight. Anything not rehearsed will not likely be remembered.

(a) Establish all harness/connection settings and adjustments with motor not running..... _____

(b) Checklist use (see appendix or instructor provided checklist)..... _____

(c) Radio use. Insure that student can hear clearly (even at high power) _____

(d) Getting into seat with motor at high power. If release of brake(s) is required, rehearse and insure student releases brake(s) first. This must be practiced repeatedly. Explain the likely results of pulling down the brake(s) while reaching for the seat board: stall or spin. Adjust to make as easy as possible..... _____

(e) Risk of brake lines getting into propeller and how to avoid..... _____

(f) [FL] Getting out of seat. _____

(g) Rehearse primary and secondary method (if available) to kill motor. _____

(h) Taking directions via radio. Have at least one verbal method of communicating with the student and verify that student responds correctly. Any student who is unwilling or unable to react properly to instructions should be politely removed from training..... _____

(i) Visual signals for verification or in case of radio failure. Cover basic USPPA Signals as used by instructor..... _____

(j) Rehearse launch, climb, [FL] getting in seat, turns including clearing, (look, shallow, look up/down, turn), landing and flare (running the motor, if safely secured, adds realism) _____

(k) Emergencies:..... _____

- i. Rehearse recognizing parachutal stall (wing goes back and headwind dies off) and correcting (reduce brakes, reduce power smoothly, prepare to brake surge and steer).
- ii. Rehearse what to do in case of unexpected or excessive roll oscillation (reduce power, reduce brakes).
- iii. Rehearse what to do in case of unexpected or excessive pitch oscillation.

- iv. Rehearse reserve use (if used): “Kill, Look, Pull, Clear and Throw.” Use dummy reserve if available.
- v. Rehearse steering options in case of brake line or pulley failure (rear riser turn, weight shift, differential trimmers, etc).
- vi. Rehearse what to do in case of spin or riser twist (reduce brakes, reduce power smoothly, prepare to brake surge and steer). Reemphasize that this can happen with too much or too quick brake.
- vii. Rehearse what to do in case of wing collapse (reduce brakes, reduce power, then steer to straighten the flight path).
- viii. Rehearse what to do if turbulence is encountered (reduce power, brakes to about ¼, allow some swinging to avoid over control). Point out that experience will allow far better active response.

- (l) Rehearse controlling pitch and surge with brakes. Discuss posture and arm position.
Emphasize smooth application and maximum pull position..... _____
- (m) Rehearse surging with power and go over wing reaction to power changes.
Emphasize smooth application..... _____
- (n) Point out torque effect and explain why to avoid turning against it. _____
- (o) Rehearse student reaction to commands (brakes, throttle, kill switch) _____
- (p) Brake position/pressures in flight including maximum safe positions. _____
- (q) Landing Prep (get out of seat [FL], throttle idle, kill motor, *minimum* brake pressure)..... _____
- (r) Flare and Landing. _____

7. PPG 1 Solo Flight, Briefing. (0:15)

- (a) Student should know what to do for the entire flight in case of radio communications break down. This is intended to be done immediately before the flight..... _____
- (b) Flight Plan (including when/how to get into the seat [FL])..... _____
- (c) Establish how Instructor will call an abort or go.
- (d) Have student show what the established visual signals are.
- (e) Have student explain and motion how to get into the seat (keeping hands up).
- (f) Have student explain and motion (as able) emergency procedures (Motor failure, Steering failure, Parachutal stall)
- (g) Have student explain the pattern and landing including when to shut of motor and [FL] when to get out of seat.

8. PPG 1 Solo Flight. (0:30)

- (a) [FL] After launch and at least 100’ of altitude gain, tell student to let go of brake (if required) before getting into seat THEN tell him to get into seat. If he is unable to get into the seat, direct him to land to avoid the legs going numb.
- (b) Climb to safe altitude (at least 300’ recommended).
- (c) Practice shallow turns as directed including at least one 360 (if able).
- (d) Throttle into level flight, descent and back into climb.
- (e) Direct the flight as necessary, call out when to shut off motor, when to get out of seat, when to flare.

PPG 2 Syllabus



For a rating, student and instructor must complete syllabus, initial each block, and sign below. Submit image of this first page online. If the PPG 1 and 2 were done together, initial in the space below and only submit this page. For a wheel-launch rating, the Wheel launch Syllabus must be completed & submitted instead. Syllabus must be signed/initialed in the the provided lines under each category and in the yellow areas below as appropriate. Every appropriate **yellow** block must be filled out.

Instructor: I have given the training listed in this syllabus.

Student: I have received the training listed this syllabus

Instructor: Initial here if PPG 1 Syllabus was *a/so* completed

Student: Initial here if PPG 1 Syllabus was *a/so* completed

, ,
 Print Instructor Name Instructor Signature Date

, ,
 Print Student Name Student Signature Date

Objective: Get students to where they can more reasonably be on their own with little or no instructor supervision, able to make decisions on fitness for flight in existing conditions, wing layout, launch type, launch location and direction in approved field, flight pattern, and landing. And able to perform at the PPG 2 level. They should generally be able to operate autonomously in a wide-open field with good weather.

Task	--Initials-- Stud Instr	Curr Date
1. Before Training Begins		
(a) PPG 2 Limitations (increased danger from exceeding these).....	_____	_____
(b) Risk awareness and disclosure (risk of severe injury or death).....	_____	_____
(c) Payment plans and expectations.....	_____	_____
(d) Before completing rating student will consult with his primary USPPA instructor before flying a new area to determine suitability and airspace requirements.....	_____	_____
2. PPG 2 Knowledge		
(a) FAR 103:	_____	_____
<i>i.</i> Solo operation and only in USA (no tandem allowed except under special exemption).		
<i>ii.</i> Where we cannot fly: around bigger airports, military, temporary flight restrictions, sensitive facilities, populated areas, other as appropriate. Understands that any area to be flown in must be checked for legality.		
<i>iii.</i> Night flying prohibition and use of strobe to go 30 minutes past sunset. During that 30 minutes, G airspace only.		
<i>iv.</i> What conditions we cannot fly in (visibility and clouds).		
<i>v.</i> Limited to recreational flying only and ways to accept compensation related to PPG.		
<i>vi.</i> Flight physical not required		
(b) Regulations and Airspace.....	_____	_____

- i.* Sectional charts: obtaining, periodic publication, general structure and use.
 - ii.* Where we fly.
 - iii.* No-Fly areas on charts and how to determine: Class A, B, C, D, surface area of D. Military, National parks.
 - iv.* No-Fly areas other than charts and how to determine: TFR's, events with large gatherings of people, dignitaries, nuclear facilities, dams and other sensitive areas.
 - v.* FSS briefing.
 - vi.* Visibility requirements and how to determine from the sectional chart.
- (c)** Operating at airports: runways, markings, aircraft patterns, collision avoidance..... _____
- (d)** Preflight..... _____
- i.* Planning: wind drift, gradients and options to increase range.
 - ii.* Controls setup.
- (e)** Preflight, Weather..... _____
- i.* How to obtain info from FSS or by computer.
 - ii.* Basic weather theory including pressure systems, highs/lows, frontal conditions and risks..
 - iii.* Avoiding dangerous thermals: what time of year, time of day and type of locations are worse (sun angle, surface types).
 - iv.* Convective: cumulus, thunderstorms and “cloud suck”.
 - v.* Sea breeze/land breeze and how an offshore wind can come up quickly.
 - vi.* Convergence.
 - vii.* Effects of wind around obstructions & wind gradient.
 - viii.* Mountain weather, mechanical turbulence, & rotor.
- (f)** Courtesy (avoiding people, their animals and over-using same area)..... _____
- (g)** Motor..... _____
- i.* Appropriate gas & oil including ratios
 - ii.* Fueling safety (only fuel with jug on ground).
 - iii.* Electric motors, batteries, risks and care.
 - iv.* Fuel/Air mixture and how to adjust, spark plug color (light brown is good).
 - v.* Regular upkeep requirements of respective unit.
 - vi.* Belt tightness, indication of looseness (chirping), re-drive, and clutch care.
- (h)** Propeller..... _____
- i.* Repair techniques and their limits.
 - ii.* Static balance, longitudinal and lateral, and Aerodynamic balance (pitch the same on each blade).
 - iii.* Tracking – having each blade pass the same point on the propellers plane (small effect).
 - iv.* Dynamic balance – having each blade use the same effective pitch angle.
 - v.* Proper mounting (most curved side forward).
 - vi.* Load path and bolt torquing.

vii. Adverse effect of vibration on all associated equipment including motor.

(i) Wing..... _____

i. Professional Inspection and interval.

ii. Field Repair.

iii. Storage &UV avoidance.

iv. Line make-up: structural core and sheath, condition, stretch, shrink and avoidance of sharp bends.

v. Porosity.

vi. Effects of wing size (see also Performance)

vii. Reflex vs Non Reflex.

viii. Ratings: EN, DHV, DULV, AFNOR meanings, limitations and significance.

(j) Reserve..... _____

i. Benefits and drawbacks of use.

ii. Selection (size, weight, landing speed), operation (fast opening), loading, and installation.

iii. Professional Inspection and repack interval.

iv. Minimizing accidental deployment.

(k) Other equipment: helmet, gloves, footwear, hook knife, string or other tree removal gear..... _____

(l) Judgment, Risks & Mitigation: Most common maladies to be avoided..... _____

i. Judgment – most important determiner of survival.

ii. Choosing appropriate site: pilot's skill level, measuring, obstructions, winds, etc.

iii. Propeller strike via improper starting, holding, being around or using motor.

iv. Improper brake usage such as getting into seat while holding brakes, turning against torque or being heavy handed..

v. Reacting to pendulum instead of doing nothing (unless it is well rehearsed).

vi. Low flying: downwind, maneuvering, power lines.

vii. Round spirals: blackout, disorientation, do asymmetric spirals instead.

viii. Water – landing in water leads to drowning. Even getting the wing into moving water can drag the pilot in.

ix. Flying in strong thermals or rotor affected air.

x. Midair—most happen with 3 or less in the air, climbing/converging into another pilot is greatest risk.

(m) Aeromedical..... _____

i. Alcohol: worsens reaction time, judgment & other unwanted affects for flight.

ii. Recreational & prescription drug effects: from subtle, barely noticeable to extreme effects. May hide effects from awareness.

iii. Sickness affects on flight.

iv. Affects of high altitude up to hypoxia.

v. Affects of altitude on middle ear, sinuses, dangers of flying with sinus problems. “Clearing” ears.

vi. SCUBA diving before or after flying.

- (n) Inflight..... _____
 - i. Judging wind and knowing its effect on groundspeed/drift.
 - ii. Estimating fuel quantity (using time, mirror, indicator or other method).
 - iii. Clearing turns and the need for extra power.
 - iv. Difficulty and methods for recognizing power lines, how to cross them (over poles, at an angle, twice the height).
 - v. How to estimate/improve glide in headwind and tailwinds.
 - vi. Landing backwards (handling a wind beyond landing speed).
 - vii. Descent techniques and risks: big ears, asymmetric spirals (NOT round spirals), B-Line stall.
- (o) Performance..... _____
 - i. Density Altitude (DA): elevation corrected for temperature (+/- 3000 ft) , barometric pressure (+/-500'), Humidity (+/- 100')
 - ii. Engine Performance: decreases at higher density altitudes (DA).
 - iii. Flight Performance: worse at higher DA. Can dramatically increase launch run and distance to climb over obstacle.
 - iv. Best climb angle and techniques to achieve.
 - v. Best climb rate and technique to achieve.
 - vi. Wind gradient and its effect on climbs.
- (p) Wing deformation/problem: frontal collapse, asymmetric collapse, cravat..... _____
- (q) Aerodynamics..... _____
 - i. Angle of climb, angle of attack, stall.
 - ii. Thrust line, hang points and their relationship (eg: high thrustline, low hang points).
 - iii. Brake's affect on speed, lift & drag.
 - iv. Trim speed, min sink rate & speed, best glide ratio & speed, maximizing glide for wind.
 - v. Why turns produce "G"s and the effect on handling.
 - vi. Aspect ratio – flat and projected.
- (r) Pass PPG 2 written test, go over wrong answers..... _____

3. PPG 2 Inflation/Launch

- (a) [FL] One handed reverse, choice of turn direction (best if opposite throttle)..... _____
- (b) Steering while running (introduce technique and reasoning)..... _____
- (c) Abnormals: prevention and reaction..... _____
 - i. Motor failure right after launch,
 - ii. Above 50 feet.
 - iii. Leg straps undone.
 - iv. Roll oscillation.
 - v. Pitch oscillation.
 - vi. Excessive torque turn.

4. PPG 2 Inflight: Maneuvers

- (a) Surge Damping (fore/aft)..... _____
- (b) Turns..... _____
- (c) Maximum brake pull and extreme Risk of getting too steep (beyond about 45°)..... _____
 - i. Against torque and with torque and risks of turning against it.
 - ii. Clearing.
 - iii. Adding power as necessary to stay level.
 - iv. Exiting without pendulum (releasing inside brake slowly).
 - v. Round Spirals, “Locking in” characteristic of paragliders, blacking out.
- (d) Ground reference maneuvers..... _____
- (e) Airborne restarting procedure (as applicable)..... _____
- (f) Trimmer use. Explain if not installed..... _____
- (g) Speedbar use and risks. Explain if not installed..... _____
- (h) Weight shift turns (if able), value and execution. Explain if gear does not allow..... _____
- (i) Practice using other accessories (as installed)..... _____

5. PPG 2 Inflight: Landing

- (a) Spot landing with power and why it’s better in turbulence..... _____
- (b) Spot landing without power: closer patterns or s-turning in stronger winds..... _____
- (c) Value and Risks of brake use during spot landings..... _____
- (d) Energy management and value of “Hands nearly full up prior to first flare”..... _____
- (e) Water landing: harness, upwind/downwind considerations, not jumping, getting away..... _____

6. PPG 2 Post flight

- (a) Value of cleaning and postflight inspection..... _____
- (b) Stowing equipment..... _____
- (c) Transporting..... _____

PPG 3 Syllabus



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, ,
 Print Instructor Name Instructor Signature Date

, ,
 Print Student Name Student Signature Date

Objective: Pilot should be able to be smooth, precise and solidly under control at all times, exhibiting mastery of the craft, and thorough knowledgeable about the various types of gear available and limitations on use. It is intended to get the pilot to operate at a high level of skill and knowledgeable.

Task	--Initials-- Stud Instr	Curr Date
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1. Before Training Begins

- (a) PPG 3 Limitations..... _____
- (b) Risk awareness and disclosure (risk of severe injury or death)..... _____
- (c) Payment plans and expectations..... _____

2. PPG 3 Knowledge

- (a) Flying into controlled fields: need for proper radio phraseology and rehearsal, understanding of airport runways, patterns, and operations..... _____
- (b) Motors. ` _____
 - i. Two stroke, four stroke, electric motor trade-offs.
 - ii. Hook-in points and their affect on launch, weight shift and landing. How to adjust.
 - iii. Distance bar types: S-arms, fixed J-bars, floating j-bars, fixed under-arm bars, pivoting under-arm bars, no bars (relegated mostly to old direct drives).
 - iv. Electrical systems used on paramotors.
 - v. Clutches – explanation including benefits and drawbacks.
 - vi. Carburetors: float bowl, membrane, fuel pump.
 - vii. Fuel system and need for venting.
 - viii. Fuel/Air mixture, Fuel/Oil mixture.
 - ix. Reduction drive styles (geared and belt).

x. Torque and asymmetric thrust (having the motor's center of thrust go off to the side causing the pilot to turn).

(e) Wings..... _____

- i. How to connect a Speedbar, ideal pulley locations and wing pulley ratio. Basic use was covered in PPG 2.
- ii. Use of reflex in paragliders, advantages, drawbacks, limitations.

(d) Propellers..... _____

- i. Disk size and its relationship to thrust, noise and speed: accelerating a lot of air a little.
- ii. Torque, significance of lean-back torque and torque induced lock out (pilot twists left, banks right).

(e) Inflight..... _____

- i. Precise dampening of left/right oscillations.
- ii. Precise dampening of fore/aft oscillations.

(f) Pass PPG 3 written test, review incorrect answers..... _____

3. **PPG 3 Ground Handling**

(a) [FL] (Optional) Kiting without harness using A's and bakes/rear risers..... _____

(b) [FL] (Optional) Kiting without harness using one hand in each riser..... _____

(c) [FL] (Optional) Kiting with the brake lines having arms behind risers..... _____

4. **PPG 3 Inflight: Inflation/Launch**

(a) [FL] Cross-armed reverse (optional)..... _____

(b) [FL] One handed reverse (most common method for motor pilots).
Why prefer turn direction opposite throttle..... _____

(c) [FL] Two handed reverse (most common method for free flight).
Discuss why to avoid (risk of throttle engagement)..... _____

(d) Steering while running/taxiing (introduce technique and reasoning). Should get to the point where pilot can steer in any upwind direction desired while running with power on..... _____

5. **PPG 3 Inflight: Maneuvers**

(a) Wingovers, Pendulum damping. (< 60° bank and 30° pitch)..... _____

(b) Precision Turns..... _____

- i. Maximum brake pull.
- ii. Coordinating – making the wing track so as to avoid tip collapses when recovering.
- iii. Adding power as necessary to stay level.
- iv. Exiting without pendulum (releasing brake slowly).

6. **PPG 3 Inflight: Steep turns (optional)** In general a turn is considered steep when the pilot feels some increase in "G" load and the brake pressure required to stay in the turn decreases. Note: Steep turns carry inherent risks and, if practiced, must be done with great care.

(a) Initiating & Maintaining – extra power required..... _____

(b) Maintaining – extra power required..... _____

(c) Exiting with minimum climbing..... _____

- (d) Asymmetric spirals. NO ROUND SPIRALS: lock-in, control sensitivity, blackout. No steeper than 60° bank..... _____
- (e) Risks – spin (aggressive entry), dive on recovery, surge/retreats..... _____
- (f) Slow flight..... _____

7. **PPG 3 Inflight: Landing**

- (a) Spot landing with power and why it's better in turbulence. Minimum standards for rating..... _____
- (b) Spot landing without power. Minimum standards for rating..... _____
- (c) Landing backwards (getting caught in strong winds)..... _____

Appendix

It is recommended to have students get into the habit of doing a check after being completely ready to fly and just before starting the launch inflation. Other preflight actions such as checking weather, choosing a safe launch area and preflight of the gear must be done prior to this point.

The Launch Checklist can be done in about 12 seconds before the run-up. Have them say, while physically checking, “leg, leg, chest, and chin,” then “brakes, ‘biners; trimmers and zippers” then clear the path, do the run-up and launch when ready.

Launch Checklist	Action	Say (memory aid)
1.	Leg strap left	Fastened and adjusted. Leg
2.	Leg strap right	Fastened and adjusted. Leg
3.	Chest straps	Fastened and adjusted. Chest and
4.	Helmet strap secure	Fastened and adjusted. Chin;
5.	Brakes	Correct hand, clear to pulley. Brakes,
6.	Carabiners	Closed, locked ‘Biners,
7.	Trimmers	Adjusted for takeoff. Trimmers and
8.	Straps and loose items	Secure and Zipped. Zippers;
9.	Run-up	Full power available, Kill test. Power,
10.	Launch path	Clear arrival/departure path Path and go

Note: If using a reserve parachute, include a look at the pin(s) when checking for straps and loose items.

The procedure below (or similar) should be rehearsed in the simulator to build a good habit pattern.

Turning	Action
1. Look	Turn head in direction of turn
2. Lean (Shallow)	Weight shift or apply light brake pressure in direction of turn
3. Up/Down	Look above and below in the direction of turn
4. Turn	Apply desired brake pressure to turn

The procedure below is also best taught with the student in a simulator. Even if the training machine does not have a reserve, it’s helpful to expose students to the procedure and have them understand the importance of rehearsing it before each flight where a reserve could be used.

Reserve Toss	Action
1. Kill	Press <i>and hold</i> kill switch.
2. Look	Physically look down at reserve handle.
3. Pull	Grab the handle and pull it out.
4. Clear &	Look around for clear air (not into your paraglider)
5. Throw	Throw it hard!

2018-Nov-20 Update to comply with FAA content mandate in Tandem Exemption and improve format

2017-03-23 Added mention of items only required for foot launching [FL] but not necessary for wheel launch rating. Added: Wheel launch rating Syllabi Changes: Cleaned up formatting. Changes: improved layout and clarity of signature blocks. Changes: improved wording of intro, included mention of WL syllabus and items that are optional when giving a [WL] only rating.