

### ***Proposal for Invictus Advanced Sailing Course***

Concentrates on advanced sailing topics on the *Invictus*, including sail trim, reefing, gibing, and use of all the boat's sails (working jib, 150% and 170% Genoas, storm jib, and spinnaker). The student will learn to perform common boat maneuvers under sail including tying up to and leaving a mooring, and anchoring. Sailing-related rules of the road will also be reviewed. A *prerequisite is the completion of the SEAS Basic Sailing course or equivalent experience*. One of the objectives of this course and the other advanced Invictus courses is grooming skippers – providing them the training and practice needed to skipper the *Invictus* and other similar sized boats. Consistent with that objective, taking this course is an opportunity to demonstrate the ability to meet one of the major criteria for being an *Invictus* skipper, namely, the ability to maneuver the boat under power and execute the common boat-handling maneuvers cited above<sup>1</sup>.

#### ***1. Class Format and Scheduling***

The Advanced Sailing course would consist of two classroom sessions (7:00-9:30PM) and two half-day boat sessions, scheduled as either two weekend half-day boat sessions, or two evening boat sessions and one half-day weekend boat session, to be determined. The weekend half-day sessions would be either 9:00 AM to 1:00 PM, or 1:00 PM to 5:00 PM, and the evening boat sessions would be from 6:00 PM to 8:30 PM. The classroom sessions would be held at Brookdale in a vacant room.

There would be one, or possibly two (demand and instructor availability permitting) complete Advanced Sailing courses scheduled for the sailing season, dates to be determined. Each course is limited to 8 students, with an additional limit of 4 students in the water sessions (this means that two sets of boat sessions will be scheduled if there are more than 4 students in the course). The tentative sequence of classes over two consecutive weeks would be as follows:

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	
First classroom session – 2.5 hrs, 8 students		First water session – 2.5 hours, first 4 students	First water session – 2.5 hours, second 4 students		Second water session – 4 hours (9:00-1:00), first 4 students	Second water session – 4 hours (1:00-5:00), second 4 students
Second classroom session – 2.5 hrs, 8 students		Third water session – 2.5 hours, first 4 students	Third water session – 2.5 hours, second 4 students			

This would provide the 5 hours of class time and 9 hours of water time, consistent with the constraint of a maximum of 4 students for the water session. Variations could be scheduling a second Saturday instead of the week-night water sessions, but this ties the boat up for a second Saturday, and leaves a wide gap between classroom and water session. Sundays would be the rain date for Saturday, *Invictus* schedule permitting. Week-night water sessions could be held on

<sup>1</sup> *Invictus* skipper certification (see Appendix for details) is independent of this course, and the successful completion of this course does not imply any certification. However, as outlined in the certification qualifications, one qualification criterion is having a member of the *Invictus* Skipper Certification Committee vouch for the applicant's skills. In keeping with the SEAS Monmouth objective of grooming qualified *Invictus* skippers, taking this course may be able to be used to meet this criterion by having the Boat Handling Course instructor vouch for the applicant's skills. Note that other, sailing-related skills are necessary for certification, which are not taught in the Boat Handling Course. See the *Invictus* Advanced Sailing Course for more details.

Tuesdays and Wednesdays instead of Wednesdays and Thursdays to keep the boat free for Thursday night sails. Also, if enrollment is less than 8, suitable consolidations in the water sessions can be made (e.g., consolidating into Wednesday evenings, and Saturday mornings).

## 2. *Cost*

The cost would be \$100 per student for the 5 hours of classroom time and 9 hours of water time, and includes classroom handouts. The handouts would summarize all the material taught. The cost may increase to \$110 if a sailing handbook is to be included (to be determined).

## 3. *Syllabus (ROUGH DRAFT)*

### 3.1 *First Classroom Session (2.5 hours, up to 8 students)*

1. Introduction to the *Invictus* with emphasis on the boat's inventory of sails and sail controls (15 minutes)
2. Review of the points of sail, tacking, and gibing (15 minutes)
3. Review of sailing physics (30 minutes)
  - a. Aerodynamics, sail "lift", and propulsion
  - b. The impact of the shape of the sail
  - c. Forces on the boat
  - d. The importance of balance
4. Break (10 minutes)
5. Controlling sail power/shape with sail controls (20 minutes)
  - a. Traveler
  - b. Downhaul/Cunningham/halyard
  - c. Outhaul
  - d. Jib cars
6. Controlling sail area – how and when (15 minutes)
  - a. Guidelines for Selection of foresail (show pictures of each foresail, including spinnaker, rigged and hoisted)
  - b. Reefing to control area of main sail (show pictures of reefed main and reefing lines)
7. Optimum sail trim for sloops (45 minutes)
  - a. Objectives in optimal sail trim (speed, balance)
  - b. Use of telltales and other measurements
  - c. Main sail trim
  - d. Jib/Genoa trim
  - e. Sail trim techniques for various conditions of wind and seas

**3.2 First Water Session (2.5 hours, up to 4 students)**

1. Rigging the Invictus sails (40 minutes)
  - a. Demonstrate rigging the main
  - b. Demonstrate the use of the main sail's sail controls
  - c. Show all foresails except spinnaker (working jib, 150% and 170% Genoas, storm jib)
  - d. Demonstrate rigging the foresail using the working jib (point out differences for rigging other foresails)
  - e. Demonstrate the use of the foresail's sail controls
2. Preparation for departure and motoring to Bay (15 minutes)
3. Stress safety and the importance of PFDs and harnesses on the boat, especially on deck
4. Sailing practice: drills on points of sail, tacking, and gibing (80 minutes)
  - a. Students should sail in circles (conditions permitting) to practice all points of sail, and a tack and gibe in each circle.
  - b. Rotate crew positions through helm and right/left jib sheets.
  - c. Emphasize the constantly changing sail trim on both the jib and main in response to the changing points of sail.
5. Returning to dock (15 minutes)

**3.3 Second Water Session (4 hours, up to 4 students)**

1. Discussion of sail selection for foresail (rig the selected sail) (10 minutes)
2. Rig the main sail; demonstrate reefing the main sail, and "shaking out" the reef at the slip (conditions permitting) (20 minutes)
3. Discuss and simulate the rigging of the spinnaker (15 minutes)
4. Preparation for departure and motoring to Bay (15 minutes)
5. Stress safety and the importance of PFDs and harnesses on the boat, especially on deck
6. Sail-trim "laboratory": demonstrate the effects of various sail trim scenarios on speed and balance using a series of structured exercises (2 hours)
  - a. Review sail trim objectives, and use of telltales and other aids
  - b. Use GPS to measure speed and pressure on helm to measure balance (or lack thereof)
  - c. Demonstrate the use of the various sail controls to achieve optimal trim
  - d. Demonstrate how to achieve proper balance
  - e. Discuss sail trim used for present wind and seas conditions
7. Rig the spinnaker and use in downwind sailing (45 minutes)
8. Returning to dock (15 minutes)

**3.4 Second Classroom Session (2.5 hours, up to 8 students)**

1. Review of the first two water sessions – questions, comments, etc. (10 minutes)
2. Review of the rules of the road, with emphasis on the sailing-related rules (15 minutes)

3. Effects of wind and current on the boat and factoring them into maneuvers (*20 minutes*)
4. Heaving to (*10 minutes*)
5. Crew-overboard (COB) (*25 minutes*)
6. Break (*10 minutes*)
7. tying up to and leaving a mooring under sail (*15 minutes*)
8. anchoring under sail (*20 minutes*)
9. docking under sail (*25 minutes*)

**3.5 *Third Water Session (2.5 hours, up to 4 students)***

1. Preparation for departure and motoring to river (*10 minutes*)
2. Tying up to and leaving a mooring under sail (*30 minutes*)
3. Heaving to demonstration (*10 minutes*)
4. Crew-overboard exercise (*15 minutes*)
5. Anchoring exercises under sail (*40 minutes*)
6. Docking exercises under sail (*35 minutes*)
7. Returning to dock (*10 minutes*)

***Appendix – Invictus Skipper Qualifications***  
***(from the “SEAS Monmouth Skipper Orientation” document, August 20, 2006)***

**Level I, River** (Pintail & Javelin only)

- Applicant must have taken the Basic Sailing Course, or have equivalent sailing experience.
- Applicant must demonstrate his/her ability to maneuver the boat under power and sail. On the water experience sufficient to command a boat in the Shrewsbury River will be required. At least one member of the SEAS Monmouth Skipper Certification Committee will have to personally vouch for the skipper applicant, based on first hand sailing experience with the applicant. Demonstration of sailing skills will be required, including dropping anchor under sail, and pulling in and out of a slip. Advanced Sailing Classes are offered for the acquisition of these skills.

**Level I (Bay)**

- Applicant must have taken the Basic Sailing Course, or have equivalent sailing experience.
- Applicant must demonstrate his/her ability to maneuver the boat under power and sail including pulling in and out of a slip, anchoring in a cove and dropping an anchor under sail. Advanced Sailing Classes are offered for the acquisition of these skills.
- On the water experience sufficient to command a boat in the Sandy Hook Bay will be required. At least one member of the SEAS Monmouth Skipper Certification Committee will have to personally vouch for the skipper applicant, based on first hand sailing experience with the applicant.

**Level II**

- All Level I pre-requisites, and...
- The applicant must have skippered Invictus at least 4 times as a **Level I** skipper before being considered for Level II. The SEAS Monmouth Skipper Certification Committee will evaluate the skipper' s resume and prior sailing experience, and may waive this requirement, based on these criteria.
- Demonstrate ability to safely control the vessel in varying tides & currents under bridges. At least one member of the SEAS Monmouth Skipper certification committee will have to personally vouch for the skipper applicant, based on first hand sailing experience with the applicant. Demonstration of sailing and anchoring skills will be required, including picking up a mooring under sail, dropping anchor under sail, pulling up to a dock and pulling in and out of a slip.

**Level III**

- All Level II pre-requisites, and...
- Completion of navigation course by a nationally known organization will be required for navigation beyond the confines of the Shrewsbury River and Sandy Hook. The course should be the Power Squadron Piloting course or the equivalent. Organizations that will be recognized are the Coast Guard Auxiliary, ASA or US Sailing. Written documentation will be required. Passing the SEAS National SQB navigation test will be accepted in lieu of the above.

- On the water experience sufficient to command a boat in New York Harbor will be required. This will include a written resume submitted to the SEAS Monmouth Skipper Certification Committee. At least one member of the committee will have to personally vouch for the applicant, based on first hand sailing experience with the applicant. In addition, demonstrated knowledge of all boat systems and basic maintenance and mechanical skills will be required. Appendix 1 is a checklist of electrical and mechanical skills. Workshops will be provided to acquire these skills.