

Coaching in the FIRST Lego League Course Syllabus (1 credit)

Course Information

Course title: Coaching in the FIRST Lego League

Credit hours: 1 or 2 credits

Prerequisites: Must be a registered FLL Coach/Mentor

Course Schedule

Date	Time	Location	Description
9/13	9am-1pm	Floyd Dryden	Orietnation
9/14	9am-1pm	Floyd Dryden	NXT Workshop
9/20	11am-1pm	JDHS Commons	Kick-Off Party
11/23	11am-5pm	Centennial Hall	Juneau Robot Jamboree

Instructor Information

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Text, Readings, Materials

- FLL Coaches Manual (Received with FLL Registration Materials)
- <http://www.firstlegoleague.org>
- <http://akstem.wordpress.com>

Course Descriptions/Objectives

FIRST LEGO League (FLL) is an exciting and fun global robotics program that ignites an enthusiasm for discovery, science, and technology in kids ages 9 to 14.

Each year FLL teams embark on an adventurous Challenge based on current, real-world issues. Guided by a team coach and assisted by mentors, the kids: Research and solve a real-world problem based on the challenge theme, present their research and solutions, and build an autonomous robot using engineering concepts

Using the yearly Challenges, FLL entices kids to think like scientists and engineers, provides a fun, creative, hands-on learning experience, teaches kids to experiment and overcome obstacles, builds self-esteem and confidence, and inspires kids to participate in science and technology

FLL coaches will learn essential team management skills, develop an understanding of the important and effectiveness of hands-on learning and guide students through problem solving activities.

Specific Objectives for the 2008 Climate Connections Challenge include:

- Understanding the effectiveness of inquiry & project based teaching
- Learning basic computer programming using the Lego Mindstorms Programming software for the NXT Brick
- Researching climate change and it's effects in Southeast Alaska and other parts of the globe
- Being familiar with structure of the FIRST Lego League
- Discussing and sharing team management techniques
- Connecting with other coaches/teachers across the globe to share best practices
- Instituting "Gracious Professionalism"

This course meets the following Alaska Teaching Standards:

1. A teacher can describe the teacher's philosophy of education and demonstrate its relationship to the teacher's practice. *Teachers will learn about inquiry-based teaching and relate it to the annual FIRST Lego League Challenge.*
3. A teacher teaches students with respect for their individual and cultural characteristics. *This year's challenge, Climate Connections, is offers the opportunity for teachers and students to incorporate local geography and climate into their research and a look at local effects of climate change.*
4. A teacher knows the teacher's content area and how to teach it. *Course sessions will focus on content knowledge relating to computer programming and climate change.*
6. A teacher creates and maintains a learning environment in which all students are actively engaged and contributing members. *Teachers will share best practices on how to make FLL practices as engaging as possible. The nature of the program (limiting teams to 3-10 students and allowing students to find their own solutions) aids in creating this environment. The rubrics provided by the FIRST Lego League also communicate high standards and clear expectations for what students will learn.*
7. A teacher works as a partner with parents, families, and the community. *FLL focuses on community engagement and sharing of solutions. All coaches are expected to interact with each other and the parents of students on their teams. All coaches are also invited to hear guest speakers, experts from our community.*
8. A teacher participates in and contributes to the teaching profession. *All coaches are expected to share best practices with each other through conference calls and regular meetings.*

This course touches on the following Alaska State Content Standards:

Science:

A. Science as Inquiry and Process

A student should understand and be able to apply the processes and applications of scientific inquiry.

B. Concepts of Physical Science

A student should understand and be able to apply the concepts, models, theories, universal principals, and facts that explain the physical world. *Through problem solving and achieving robot missions.*

C. Concepts of Life Science

A student should understand and be able to apply the concepts, models, theories, facts, evidence, systems, and processes of life science. *Relating to climate change research.*

D. Concepts of Earth Science

A student should understand and be able to apply the concepts, processes, theories, models, evidence, and systems of earth and space sciences. *Relating to climate change research.*

F. Cultural, Social, Personal Perspectives and Sciences

A student should understand the dynamic relationships among scientific, cultural, social, and personal perspectives. *Through research relating to Climate Connections topic.*

Technology:

A. A student should be able to operate technology-based tools. *Robot Programming*

B. A student should be able to use technology to locate, select, and manage information. *Online research.*

C. A student should be able to use technology to explore ideas, solve problems, and derive meaning. *Online research & robot programming.*

D. A student should be able to use technology to express ideas and exchange information. *Online forums and team communication.*

English/Language Arts:

A. A student should be able to speak and write well for a variety of purposes and audiences. *Teams present to judges (2 prepared presentations w Q&A period and one teamwork activity which is not prepared ahead of time)*

C. A student should be able to identify and select from multiple strategies in order to complete projects independently and cooperatively. *Students are responsible for doing the work to prepare for the tournament.*

D. A student should be able to think logically and reflectively in order to present and explain positions based on relevant and reliable information. *Climate research & logical thinking related to robot programming*