Hypothesis testing only indicates significance results in the case of rejecting the null hypothesis. If the alternative hypothesis is defined in terms of what you are trying to "prove", then by rejecting the null hypothesis, we can conclude there is sufficient evidence to accept the alternative hypothesis. But this is only a one directional exercise. If the data or the level of significance is such that we fail to reject the null hypothesis then it is improper to say we accept the null hypothesis. Rather, we say there is insufficient evidence to warrant accepting the alternative hypothesis. To say we accept the null hypothesis is to expose ourselves to a Type Two Error of unknown magnitude. Textbooks refer to this approach as difference hypothesis testing. However, the is a less commonly described hypothesis test which can be used to demonstrate equivalence. Since we cannot "prove" the null hypothesis (i.e., equality), we might be able show that two sample means are statistically equivalent within an acceptable interval. Note: Just as is the case that the choice of the level of significance is left to the analyst, so is the responsibility for defining the acceptable equivalence interval.

Equivalence Testing is addressed in the article
Isn't That Saying the Same Thing?
José G. Ramírez, Ph.D., W. L. Gore and Associates, Inc. Mark Bailey, Ph.D., SAS Institute Inc. JMPer Cable
A Technical Publication for JMP® Users
Issue 26 Winter 2010
http://www.jmp.com/about/newsletters/jmpercable/pdf/26_winter_2010.pdf

Other references include:
"Analyzing and Interpreting Continuous Data Using JMP: A Step-by-Step Guide"
by Jose G Ramirez, Brenda S Ramirez, Cary, N.C. : SAS Institute, c2009

And Internet searches on the terms: Two One-Sided Tests, TOST.

The specific tasks for the Equivalence Testing Project are as follows:

Research the topic of equivalence testing.

Write a six page white paper on equivalence testing.

Create four example/exercise equivalence testing problems, including problem statements, JMP data tables, and cut & paste copies of the JMP analyses results.

Develop a lesson plan (including PowerPoint presentation) using the above information for teaching an equivalence testing topic in a future Engineering Statistics course.

Your project report must include a bibliography with proper citations for the referenced works of others. And each submittal must include a statement that certifies the work is an original effort by you except as noted. A statement should also be included that grants Wright State University and your instructor unlimited use and distribution of your material. In return, your work will be properly cited if it is used in other endeavors. See example below.

I, your name, certify that my work on this project, project name, is an original effort on my part except as noted in the references. I hereby grant to instructor's name and Wright State University, Dayton Ohio, unlimited use and distribution of the aforementioned material.

The project must be completed and submitted by Friday, June 3rd, 2011. Late submittals will incur a substantial points penalty and will result in a one letter grade reduction for the course.