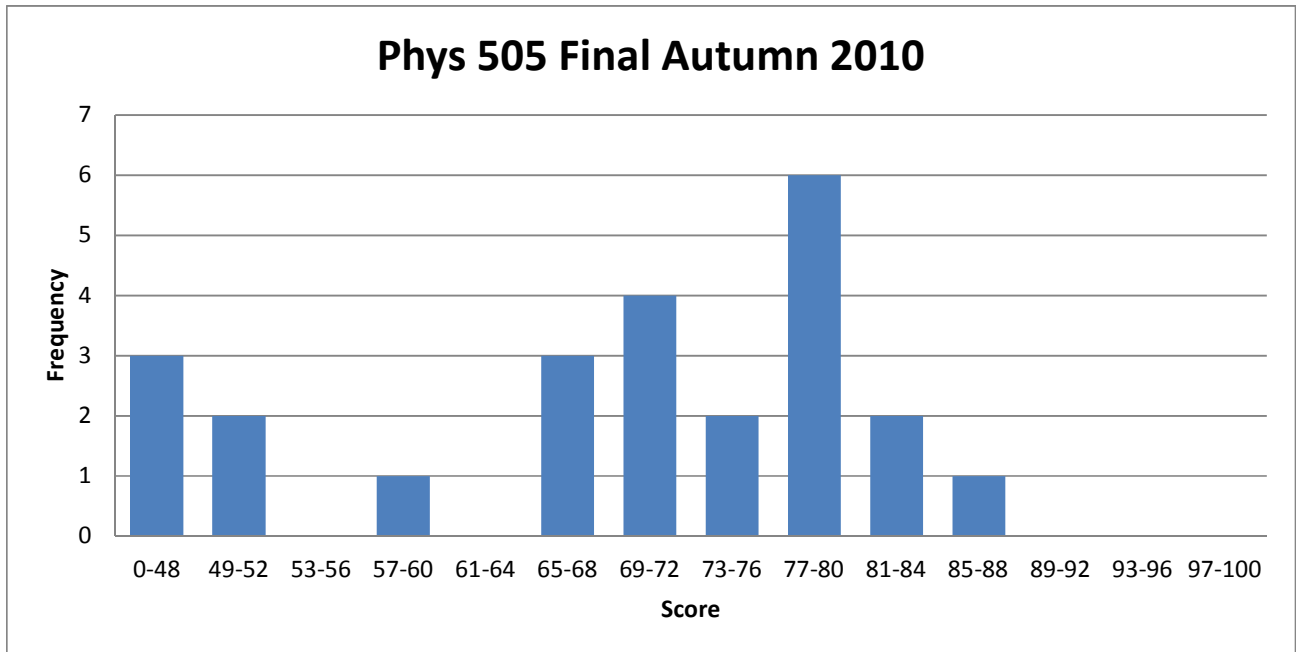


## Final Exam Results –

Average points – 69 (out of 100), High = 87, Low = 40

The distribution looks like –



A major challenge on this exam, as it was on the Midterm exam, was the need to be able to perform simple computations quickly and reliably. Part of the problem is not checking your work as you go along (the units must match!) and another part is the apparent choice not to commit common mathematical identities to memory. Many people were challenged by taking derivatives of and/or expanding trigonometric functions. I really do believe that you should memorize the double angle formula and not have to reconstruct it each time you want to use it. Another challenge was reading the instructions carefully. Many people either did too little or too much. In any case these difficulties meant that the exam was too long for several people. On the physics side, several people had trouble recognizing whether gravity makes objects fall up or down. In my mind this is another case of the need to develop the habit of checking whether your work makes sense as you go along. My largest apparent misjudgment was expecting that you had learned more than the simplest properties of the Euler angles. The average score on the second question was less than 50%. I encourage you to browse the solutions on the web to cement your command of the subject (and tell me if you find mistakes).

