Plugins Required: Numpy

Python Version Used: 2.7

I decided to implement the Blum Blum Shub pseudo random sequence for the prng. My entropy testing consists of finding the arithmetic mean of the sequence. The closer the mean is to 130 the more likely it is to be random. My findings were that the vast majority of the time, sequences > 100 would have an arithmetic mean of between 120 and 140, making them close enough to this 130 number to be considered relatively random. However the monobit test I implemented does not seem to ever deem the sequence to be random.

Sample Output:

Enter how long of a sequence is required: 2048

The generated random sequence is: [77L, 254L, 118L, 140L, 255L, 73L, 26L, 234L, 251L, 100L, 111L, 159L, 234L, 49L, 162L, 108L, 117L, 68L, 142L, 209L, 219L, 244L, 172L, 162L, 58L, 231L, 248L, 49L, 175L, 88L, 218L, 208L, 57L, 117L, 253L, 30L, 39L, 22L, 78L, 236L, 30L, 191L, 169L, 208L, 154L, 161L, 230L, 148L, 101L, 220L, 99L, 183L, 121L, 10L, 162L, 219L, 42L, 184L, 78L, 29L, 133L, 50L, 233L, 136L, 90L, 95L, 253L, 46L, 0L, 49L, 12L, 170L, 251L, 135L, 113L, 142L, 28L, 250L, 49L, 224L, 186L, 42L, 50L, 92L, 227L, 16L, 202L, 66L, 75L, 41L, 136L, 95L, 116L, 27L, 18L, 224L, 157L, 234L, 219L, 28L, 229L, 156L, 23L, 32L, 196L, 250L, 230L, 186L, 252L, 23L, 125L, 212L, 160L, 159L, 108L, 43L, 238L, 219L, 116L, 250L, 36L, 251L, 1L, 224L, 9L, 71L, 74L, 211L, 158L, 225L, 1L, 50L, 175L, 233L, 79L, 6L, 108L, 219L, 238L, 132L, 216L, 112L, 5L, 25L, 228L, 98L, 56L, 248L, 33L, 164L, 182L, 220L, 169L, 113L, 58L, 250L, 249L, 120L, 31L, 140L, 213L, 207L, 173L, 223L, 183L, 151L, 25L, 62L, 147L, 242L, 18L, 27L, 194L, 152L, 65L, 88L, 63L, 122L, 182L, 253L, 168L, 88L, 50L, 124L, 71L, 94L, 216L, 46L, 218L, 222L, 177L, 68L, 192L, 151L, 190L, 42L, 129L, 51L, 102L, 48L, 93L, 160L, 130L, 112L, 96L, 25L, 4L, 189L, 61L, 9L, 28L, 72L, 238L, 219L, 126L, 57L, 199L, 48L, 54L, 225L, 253L, 131L, 237L, 255L, 14L, 117L, 108L, 65L, 62L, 232L, 65L, 102L, 30L, 175L, 67L, 10L, 23L, 0L, 64L, 228L, 246L, 154L, 91L, 146L, 35L, 132L, 202L, 4L, 198L, 192L, 86L, 9L, 206L, 53L, 78L, 102L, 211L, 238L, 139L, 162L, 168L, 55L, 202L, 222L, 110L, 94L, 103L, 156L, 242L, 120L, 208L, 31L, 77L, 48L, 152L, 166L, 131L, 55L, 133L, 225L, 249L, 105L, 235L, 144L, 243L, 225L, 99L, 230L, 141L, 205L, 90L, 56L, 28L, 14L, 80L, 50L, 84L, 27L, 151L, 58L, 10L, 16L, 178L, 241L, 187L, 70L, 11L, 119L, 12L, 235L, 14L, 142L, 151L, 219L, 63L, 122L, 101L, 95L, 225L, 252L, 194L, 53L, 72L, 179L, 124L, 168L, 233L, 181L, 184L, 227L, 22L, 15L, 248L, 109L, 92L, 114L, 238L, 128L, 98L, 62L, 195L, 194L, 87L, 96L, 250L, 64L, 121L, 14L, 203L, 74L, 63L, 89L, 141L, 153L, 133L, 59L, 16L, 186L, 30L, 41L, 54L, 222L, 62L, 28L, 52L, 147L, 0L, 48L, 96L, 130L, 171L, 59L, 109L, 112L, 85L, 58L, 41L, 237L, 104L, 251L, 89L, 170L, 55L, 59L, 222L, 61L, 102L, 96L, 102L, 157L, 210L, 180L, 225L, 202L, 144L, 203L, 229L, 116L, 139L, 240L, 200L, 42L, 243L, 29L, 211L, 127L, 174L, 59L, 136L, 245L, 182L, 24L, 57L, 49L, 238L, 63L, 104L, 114L, 173L, 7L, 63L, 202L, 216L, 133L, 143L, 193L, 112L, 102L, 12L, 246L, 245L, 98L, 183L, 191L, 101L, 196L, 108L, 35L, 117L, 224L, 206L, 102L, 8L, 243L, 55L, 108L, 178L, 75L, 10L, 104L, 8L, 212L, 61L, 147L, 236L, 203L, 154L, 18L, 2L, 206L, 214L, 17L, 52L, 34L, 158L, 247L, 43L, 124L, 54L, 157L, 0L, 15L, 58L, 217L, 182L, 114L, 59L, 115L, 20L, 233L, 54L, 170L, 95L, 166L, 144L, 186L, 161L, 23L, 73L, 253L, 170L, 209L, 211L, 145L, 151L, 47L, 195L, 99L, 20L, 169L, 18L, 49L, 28L, 245L, 170L, 97L, 102L, 108L, 252L, 202L, 134L, 164L, 47L, 62L, 132L, 183L, 172L, 135L, 79L, 193L, 175L, 7L, 123L, 100L, 167L, 44L, 143L, 210L, 195L, 191L, 43L, 244L, 28L, 35L, 224L, 52L, 184L, 156L, 100L, 162L, 171L, 112L, 202L, 26L, 152L, 223L, 101L, 2L, 243L, 242L, 227L, 130L, 24L, 179L, 102L, 160L, 91L, 232L, 174L, 254L, 199L, 248L, 80L, 159L, 237L, 125L, 141L, 5L, 214L, 196L, 141L, 104L, 42L, 171L, 45L, 189L, 194L, 254L, 169L, 70L, 82L, 211L, 241L, 54L, 103L, 172L, 112L, 145L, 174L, 74L, 254L, 183L, 153L, 114L, 110L, 0L, 42L, 181L, 231L, 236L, 239L, 59L, 239L, 248L, 138L, 21L, 224L, 120L, 138L, 234L, 178L, 179L, 149L, 103L, 60L, 126L, 2L, 210L, 176L, 231L, 45L, 245L, 229L, 229L, 218L, 217L, 19L, 150L, 161L, 121L, 157L, 69L, 16L, 86L, 108L, 176L, 137L, 183L, 63L, 227L, 244L, 155L, 93L, 117L, 212L, 21L, 32L, 1L, 223L, 123L, 102L, 130L, 25L, 42L, 201L, 235L, 132L, 100L, 221L, 61L, 145L, 143L, 106L, 14L, 165L, 215L, 130L, 222L, 219L, 247L, 210L, 105L, 143L, 111L, 152L, 90L, 84L, 185L, 255L, 202L, 165L, 68L, 141L, 68L, 111L, 41L, 92L, 209L, 20L, 57L, 31L, 200L, 110L, 42L, 141L, 87L, 120L, 89L, 129L, 100L, 204L, 83L, 126L, 106L, 86L, 36L, 87L, 28L, 229L, 191L, 106L, 193L, 245L, 152L, 174L, 7L, 178L, 113L, 241L, 250L, 75L, 249L, 184L, 163L, 68L, 44L, 94L, 38L, 122L, 194L, 54L, 224L, 70L, 101L, 249L, 195L, 179L, 73L, 242L, 164L, 217L, 11L, 43L, 186L, 251L, 104L, 246L, 59L, 183L, 152L, 2L, 42L, 0L, 72L, 43L, 146L, 0L, 90L, 113L, 90L, 190L, 35L, 10L, 37L, 241L, 206L, 23L, 7L, 107L, 126L, 28L, 77L, 203L, 46L, 233L, 54L, 58L, 61L, 230L, 236L, 68L, 80L, 229L, 231L, 236L, 165L, 139L, 192L, 133L, 34L, 41L, 139L, 124L, 88L, 79L, 175L, 141L, 219L, 9L, 213L, 98L, 37L, 141L, 73L, 148L, 21L, 140L, 38L, 196L, 165L, 44L, 141L, 116L, 65L, 92L, 40L, 150L, 205L, 175L, 194L, 23L, 196L, 171L, 29L, 153L, 88L, 232L, 68L, 217L, 232L, 226L, 6L, 14L, 169L, 83L, 253L, 74L, 62L, 93L, 6L, 77L, 108L, 91L, 248L, 186L, 94L, 66L, 122L, 136L, 65L, 101L, 33L, 141L, 167L, 186L, 76L, 83L, 78L, 96L, 187L, 41L, 22L, 142L, 49L, 115L, 131L, 101L, 73L, 24L, 185L, 252L, 161L, 185L, 106L, 166L, 125L, 92L, 15L, 121L, 142L, 5L, 36L, 192L, 124L, 220L, 189L, 0L, 51L, 209L, 203L, 43L, 124L, 171L, 60L, 240L, 176L, 161L, 6L, 195L, 255L, 242L, 49L, 24L, 40L, 90L, 64L, 248L, 233L, 255L, 238L, 216L, 223L, 121L, 2L, 202L, 71L, 220L, 231L, 200L, 221L, 231L, 253L, 130L, 60L, 238L, 247L, 200L, 125L, 90L, 157L, 191L, 174L, 94L, 99L, 78L, 168L, 46L, 210L, 11L, 129L, 131L, 7L, 158L, 103L, 220L, 35L, 233L, 100L, 126L, 76L, 218L, 92L, 53L, 153L, 42L, 46L, 189L, 191L, 79L, 28L, 202L, 234L, 84L, 98L, 86L, 24L, 204L, 121L, 91L, 122L, 191L, 38L, 5L, 5L, 137L, 61L, 212L, 160L, 109L, 59L, 86L, 14L, 153L, 6L, 214L, 147L, 124L, 161L, 118L, 231L, 89L, 32L, 105L, 215L, 50L, 228L, 4L, 22L, 177L, 237L, 208L, 74L, 196L, 167L, 240L, 181L, 98L, 28L, 30L, 203L, 140L, 96L, 147L, 81L, 184L, 168L, 62L, 106L, 148L, 88L, 254L, 97L, 48L, 78L, 178L, 91L, 178L, 81L, 24L, 169L, 111L, 61L, 96L, 255L, 221L, 236L, 60L, 200L, 141L, 4L, 1L, 152L, 158L, 127L, 182L, 52L, 161L, 5L, 152L, 95L, 234L, 209L, 0L, 249L, 87L, 98L, 89L, 113L, 251L, 59L, 41L, 112L, 68L, 90L, 170L, 121L, 172L, 72L, 125L, 19L, 89L, 27L, 123L, 126L, 34L, 157L, 111L, 184L, 248L, 139L, 55L, 80L, 36L, 133L, 185L, 55L, 35L, 127L, 166L, 182L, 2L, 68L, 47L, 166L, 154L, 48L, 57L, 110L, 252L, 92L, 147L, 214L, 113L, 146L, 248L, 146L, 233L, 17L, 116L, 195L, 135L, 222L, 149L, 54L, 39L, 177L, 238L, 29L, 77L, 103L, 15L, 80L, 142L, 215L, 97L, 203L, 226L, 175L, 228L, 49L, 143L, 62L, 38L, 142L, 125L, 19L, 225L, 221L, 146L, 30L, 231L, 94L, 232L, 242L, 9L, 151L, 247L, 54L, 116L, 75L, 138L, 60L, 9L, 49L, 7L, 156L, 238L, 152L, 74L, 165L, 214L, 164L, 30L, 204L, 176L, 208L, 45L, 26L, 183L, 133L, 168L, 194L, 235L, 6L, 150L, 4L, 67L, 176L, 56L, 30L, 102L, 155L, 188L, 175L, 17L, 190L, 26L, 140L, 182L, 68L, 112L, 241L, 234L, 38L, 189L, 195L, 227L, 197L, 166L, 164L, 71L, 63L, 108L, 223L, 115L, 111L, 126L, 42L, 141L, 168L, 76L, 78L, 198L, 84L, 22L, 159L, 172L, 245L, 0L, 99L, 237L, 16L, 169L, 252L, 31L, 236L, 206L, 165L, 82L, 119L, 143L, 140L, 240L, 179L, 80L, 53L, 153L, 121L, 17L, 49L, 183L, 70L, 147L, 104L, 58L, 24L, 175L, 190L, 69L, 147L, 115L, 21L, 209L, 231L, 210L, 8L, 214L, 211L, 20L, 143L, 157L, 48L, 34L, 32L, 230L, 90L, 149L, 176L, 221L, 237L, 252L, 16L, 130L, 8L, 9L, 160L, 18L, 60L, 145L, 124L, 99L, 41L, 203L, 204L, 223L, 74L, 98L, 19L, 215L, 19L, 38L, 29L, 51L, 59L, 161L, 56L, 184L, 40L, 211L, 160L, 166L, 112L, 191L, 139L, 81L, 216L, 35L, 208L, 85L, 126L, 19L, 138L, 18L, 104L, 222L, 128L, 131L, 27L, 17L, 226L, 12L, 124L, 70L, 3L, 20L, 85L, 125L, 114L, 81L, 209L, 182L, 131L, 254L, 212L, 151L, 68L, 194L, 164L, 16L, 69L, 188L, 62L, 65L, 97L, 152L, 43L, 16L, 218L, 243L, 225L, 52L, 35L, 29L, 109L, 18L, 166L, 232L, 186L, 177L, 44L, 83L, 25L, 177L, 74L, 83L, 110L, 101L, 89L, 126L, 150L, 62L, 148L, 202L, 116L, 26L, 240L, 243L, 90L, 171L, 188L, 186L, 100L, 98L, 102L, 122L, 153L, 246L, 221L, 46L, 21L, 126L, 145L, 18L, 58L, 192L, 143L, 16L, 228L, 94L, 236L, 61L, 9L, 131L, 135L, 232L, 252L, 51L, 172L, 240L, 252L, 170L, 161L, 160L, 100L, 118L, 128L, 16L, 206L, 167L, 122L, 15L, 219L, 11L, 231L, 28L, 59L, 197L, 98L, 83L, 184L, 158L, 220L, 211L, 160L, 30L, 31L, 190L, 220L, 223L, 100L, 177L, 51L, 218L, 79L, 157L, 113L, 101L, 153L, 100L, 193L, 20L, 184L, 106L, 82L, 245L, 168L, 91L, 31L, 32L, 85L, 122L, 47L, 149L, 73L, 21L, 218L, 50L, 88L, 159L, 92L, 187L, 108L, 118L, 173L, 44L, 180L, 175L, 116L, 103L, 202L, 225L, 138L, 59L, 198L, 139L, 2L, 202L, 45L, 29L, 132L, 47L, 158L, 94L, 144L, 212L, 83L, 131L, 102L, 224L, 0L, 203L, 53L, 212L, 218L, 217L, 43L, 165L, 82L, 215L, 24L, 149L, 148L, 121L, 54L, 254L, 228L, 136L, 161L, 139L, 64L, 4L, 31L, 121L, 120L, 209L, 253L, 197L, 53L, 46L, 57L, 4L, 64L, 111L, 63L, 201L, 122L, 225L, 97L, 17L, 3L, 232L, 7L, 91L, 123L, 139L, 252L, 102L, 245L, 103L, 134L, 182L, 255L, 167L, 110L, 6L, 245L, 238L, 31L, 126L, 35L, 59L, 215L, 242L, 213L, 73L, 63L, 146L, 238L, 19L, 209L, 250L, 201L, 85L, 119L, 212L, 79L, 99L, 63L, 188L, 31L, 242L, 199L, 101L, 30L, 136L, 125L, 55L, 76L, 22L, 143L, 27L, 129L, 168L, 109L, 201L, 171L, 173L, 192L, 117L, 64L, 35L, 198L, 75L, 196L, 190L, 33L, 226L, 231L, 167L, 124L, 38L, 148L, 92L, 204L, 11L, 131L, 66L, 26L, 62L, 65L, 119L, 182L, 50L, 235L, 74L, 149L, 12L, 36L, 161L, 32L, 239L, 24L, 4L, 37L, 223L, 111L, 36L, 92L, 68L, 46L, 175L, 64L, 69L, 186L, 31L, 204L, 74L, 62L, 115L, 36L, 136L, 0L, 225L, 79L, 84L, 63L, 255L, 0L, 139L, 33L, 48L, 193L, 220L, 136L, 61L, 92L, 23L, 164L, 245L, 131L, 42L, 178L, 80L, 141L, 29L, 172L, 218L, 59L, 131L, 179L, 135L, 229L, 135L, 49L, 226L, 140L, 131L, 109L, 38L, 242L, 147L, 62L, 20L, 221L, 45L, 117L, 225L, 128L, 102L, 240L, 221L, 247L, 239L, 79L, 128L, 154L, 203L, 52L, 162L, 235L, 174L, 252L, 100L, 58L, 65L, 167L, 56L, 134L, 115L, 28L, 183L, 192L, 6L, 164L, 228L, 204L, 234L, 118L, 214L, 251L, 15L, 205L, 226L, 99L, 135L, 115L, 182L, 66L, 131L, 198L, 109L, 198L, 10L, 248L, 217L, 212L, 92L, 219L, 123L, 97L, 170L, 196L, 127L, 10L, 229L, 242L, 228L, 24L, 250L, 199L, 94L, 40L, 183L, 26L, 83L, 240L, 19L, 240L, 91L, 237L, 66L, 81L, 137L, 49L, 114L, 109L, 72L, 111L, 13L, 177L, 119L, 181L, 124L, 204L, 97L, 214L, 227L, 206L, 53L, 174L, 252L, 112L, 123L, 131L, 194L, 110L, 114L, 72L, 121L, 195L, 154L, 199L, 232L, 105L, 106L, 91L, 241L, 85L, 22L, 208L, 183L, 148L, 44L, 75L, 140L, 147L, 113L, 17L, 193L, 219L, 2L, 127L, 223L, 247L, 146L, 106L, 160L, 183L, 202L, 13L, 15L, 67L, 74L, 35L, 186L, 159L, 92L, 73L, 52L, 194L, 188L, 60L, 222L, 225L, 125L, 165L, 42L, 111L, 115L, 20L, 18L, 144L, 168L, 241L, 136L, 146L, 104L, 86L, 0L, 77L, 112L, 17L, 6L, 86L, 159L, 66L, 40L, 92L, 26L, 26L, 54L, 79L, 243L, 200L, 246L, 232L, 118L, 181L, 107L, 124L, 21L, 238L, 142L, 210L, 129L, 233L, 67L, 239L, 118L, 5L, 192L, 120L, 217L, 135L, 190L, 95L, 193L, 7L, 77L, 222L, 70L, 195L, 86L, 245L, 87L, 113L, 244L, 124L, 185L, 208L, 2L, 45L, 18L, 66L, 236L, 242L, 148L, 77L, 197L, 89L, 155L, 100L, 67L, 9L, 224L, 72L, 63L, 123L, 149L, 142L, 40L, 252L, 239L, 131L, 123L, 56L, 176L, 236L, 224L, 61L, 201L, 30L, 24L, 178L, 111L, 228L, 189L, 27L, 235L, 237L, 7L, 143L, 20L, 149L, 133L, 30L, 137L, 144L, 161L, 165L, 188L, 209L, 1L, 205L, 42L, 208L, 106L, 91L, 188L, 224L, 152L, 118L, 109L, 176L, 56L, 92L, 229L, 31L, 176L, 24L, 44L, 157L, 61L, 45L, 208L, 187L, 101L, 31L, 153L, 190L, 51L, 234L, 82L, 134L, 221L, 247L, 230L, 68L, 165L, 172L, 31L, 127L, 220L, 92L, 20L, 230L, 61L, 79L, 215L, 77L, 88L, 157L, 8L, 217L, 94L, 32L, 160L, 254L, 45L, 179L, 143L, 95L, 195L, 139L, 36L, 29L, 83L, 22L, 48L, 178L, 144L, 236L, 221L, 168L, 128L, 65L, 19L, 121L, 69L, 129L, 167L, 152L, 49L, 145L, 87L, 170L, 75L, 165L]

Running entropy tests

The arithmetic mean of the sequence is; 127.971679688 indicating that the data is close to random

PValue is: 1.88431384402e-69

Monobit test indicates that the sequence is non-random