To find the probability that all four seasons occur at least once among the birthdays of the seven people, we can use the principle of inclusion-exclusion.

The total number of possible outcomes is the number of ways to assign a season to each person, which is 4^7 since each person can have one of four seasons. This gives us a total of 16384 possible outcomes.

Now let's calculate the number of outcomes where at least one season is missing. We can consider the four cases where one season is missing, two seasons are missing, three seasons are missing, and four seasons are missing.

Case 1: One season is missing

There are four ways to choose which season is missing, and then we need to assign the remaining three seasons to the seven people. This can be done in (3^7) ways. So there are 4 \* (3^7) outcomes where one season is missing.

Case 2: Two seasons are missing

There are (4 choose 2) = 6 ways to choose which two seasons are missing, and then we need to assign the remaining two seasons to the seven people. This can be done in (2^7) ways. So there are 6 \* (2^7) outcomes where two seasons are missing.

Case 3: Three seasons are missing

There are (4 choose 3) = 4 ways to choose which three seasons are missing, and then we need to assign the remaining one season to the seven people. This can be done in (1^7) = 1 way. So there are 4 \* 1 = 4 outcomes where three seasons are missing.

Case 4: Four seasons are missing

There is only one way in which all four seasons are missing.

Using the principle of inclusion-exclusion, the number of outcomes where at least one season is missing is:

4 \* (3^7) - 6 \* (2^7) + 4 \* 1 + 1 = 1636

Therefore, the number of outcomes where all four seasons occur at least once is:

16384 - 1636 = 14748

The probability that all four seasons occur at least once among the birthdays of the seven people is:

14748 / 16384 ≈ 0.899

So the probability is approximately 0.899, or 89.9%.

To find the probability that Alice will have classes every day, Monday through Friday, we need to consider the number of favorable outcomes and the total number of possible outcomes.

The favorable outcomes are the ways in which Alice can select 7 classes, one for each day of the week, from the available 30 classes.

The total number of possible outcomes is the total number of ways in which Alice can select 7 classes from the available 30 classes.

The number of favorable outcomes can be calculated as follows:

Number of favorable outcomes = (6 choose 1) \* (6 choose 1) \* (6 choose 1) \* (6 choose 1) \* (6 choose 1) \* (30 - 5)

Explanation: Alice needs to choose one class from each day of the week, except Friday, which can have any of the 30 available classes. There are 6 classes to choose from for each day of the week from Monday to Thursday, and (30 - 5) = 25 classes to choose from for Friday since one class has already been chosen for that day.

Using the combination formula (n choose k) = n! / (k! \* (n - k)!), we can calculate the number of favorable outcomes:

Number of favorable outcomes = 6 \* 6 \* 6 \* 6 \* 6 \* 25 = 324,000

The total number of possible outcomes is the number of ways in which Alice can select 7 classes from the available 30 classes:

Total number of possible outcomes = (30 choose 7)

Using the combination formula again, we can calculate the total number of possible outcomes:

Total number of possible outcomes = (30! / (7! \* (30 - 7)!)) = 203,580

Therefore, the probability that Alice will have classes every day, Monday through Friday, is:

Probability = Number of favorable outcomes / Total number of possible outcomes = 324,000 / 203,580 ≈ 0.159

So the probability is approximately 0.159, or 15.9%.